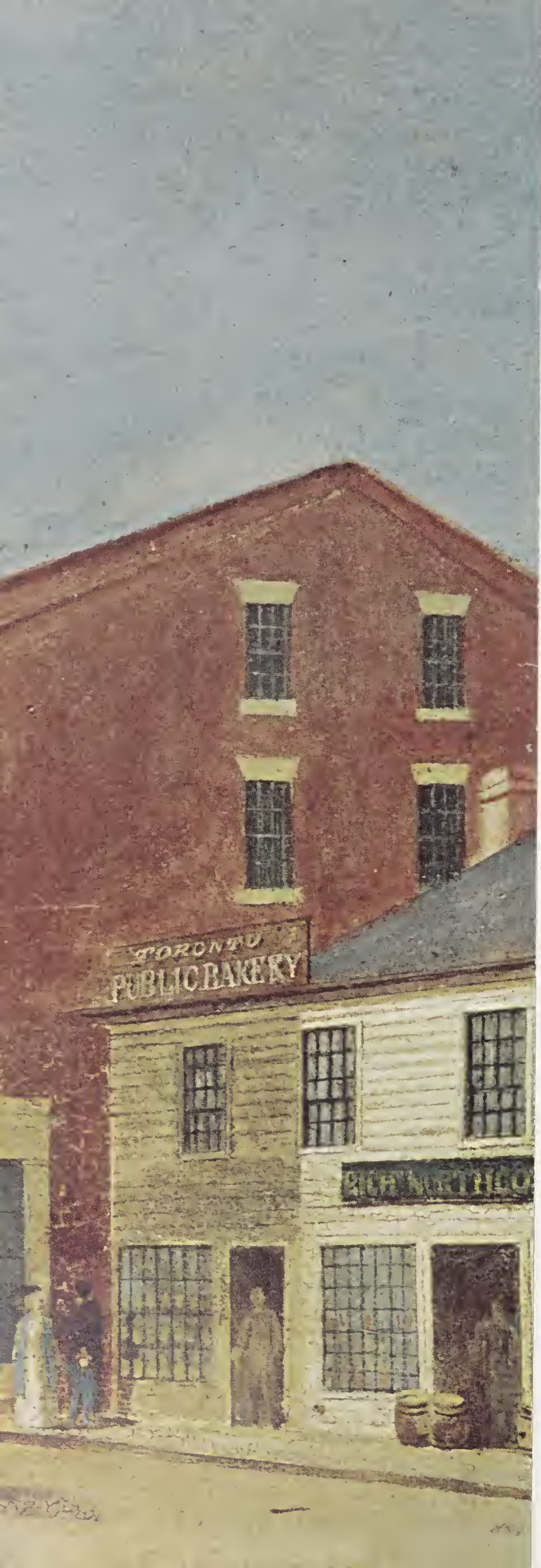


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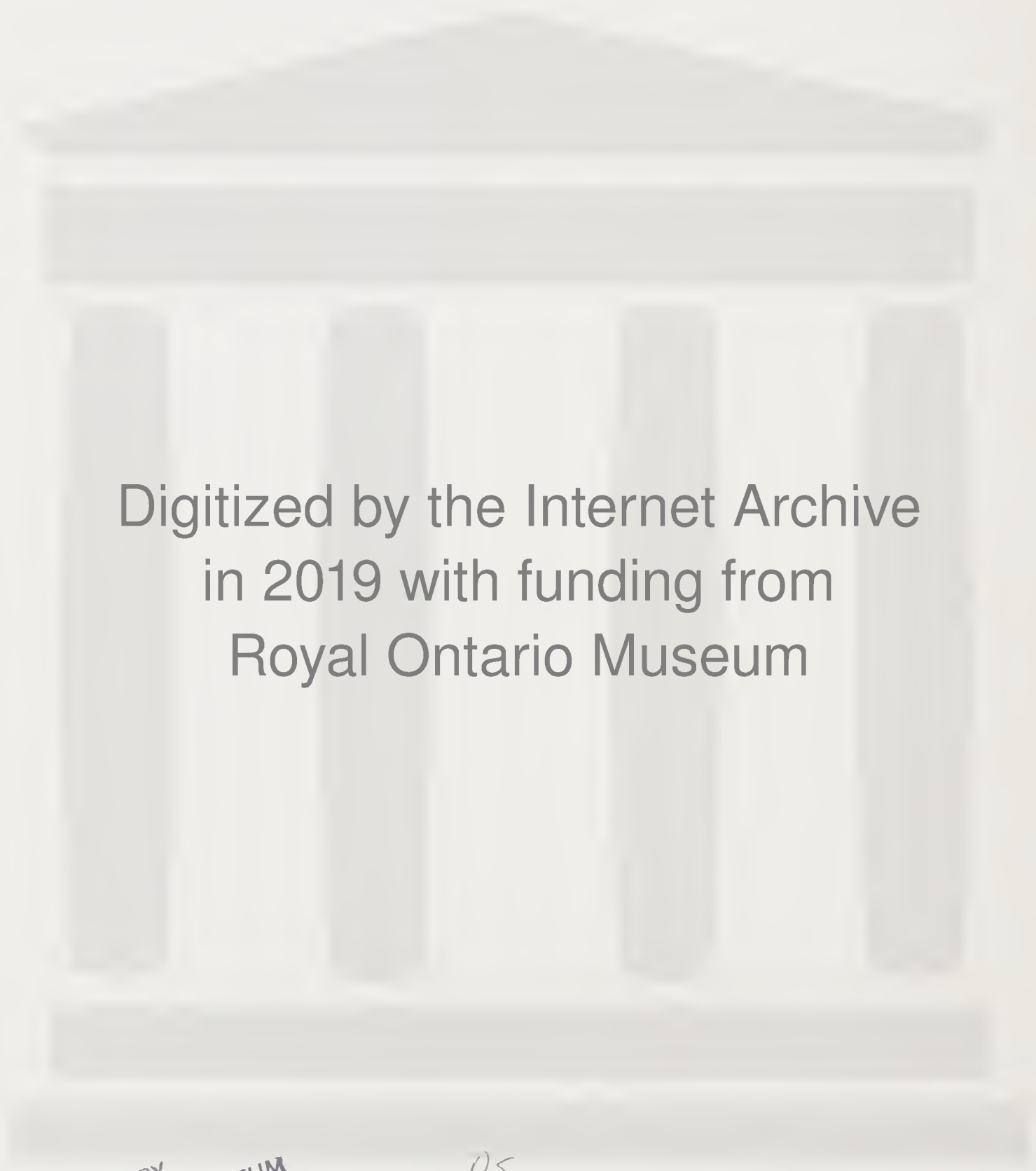
The Cover:

For the Annual Report in ROM's Diamond Jubilee Year a very Canadian painting has been selected from the collections of the Canadiana Department.

Thomas Young (attributed to) *A View of King Street, Toronto* oil on canvas. 11 x 22 in. 955.175

This view shows King Street looking westward from the corner of Jarvis Street, with the market building (later the site of St. Lawrence Hall) in the left foreground and St. James Cathedral in the background. The shop signs (Richard Northcote, I. A. Smith, Romain & Brothers, Macfarlane Victoria House) correspond with directory listings between 1840 and 1845. The cathedral had just been rebuilt in 1840 and was the first version to have a spire. The shoppers with baskets, a delivery wagon and an open carriage, the military men and elegant horseback riders each tell a story about the activities in a prospering community. The painting is most probably the work of Thomas Young (active in Toronto 1835-47), architect and designer who drew up the plans for King's College and sketched four views of Toronto which were published by Nicholas Currier in 1835.

Mounted reproductions of the cover, ready for framing, with the type removed, are available at the Museum's Book and Gift Shop. The price is \$5.00 each.



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22nd Annual Report Royal Ontario Museum July 1971 / June 1972 Toronto

*Members of the Board,
as at June 30, 1972*
Noah Torno, M.B.E., Chairman
Roy Cole
J. H. Crang
Mrs. D. C. Early
Hon. Leslie M. Frost, Q.C.
Mrs. A. J. Grout
Mrs. W. B. Harris
John E. Langdon
Richard G. Meech, Q.C.
Stephen B. Roman
Clair Stewart
Mrs. Edgar J. Stone
D. C. Webster
Col. D. B. Weldon

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Board of Governors,
University of Toronto
J. H. Sword,
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H. M. Turner
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J.R.M. Wilson



Report of the Board of Trustees of the Royal Ontario Museum

To The Lieutenant Governor
in Council

July 1971—June 1972

Anniversaries are generally regarded as occasions of remembrance and in this, our Diamond Jubilee year, we can look back on 60 years of development of the ROM. This is a fitting time to pay tribute to those many individuals whose efforts and initiatives over the last six decades have contributed to the advancement of the Museum from its modest beginnings into the position of international respect that it now enjoys.

But not only will 1972 be remembered for its celebration of our past and present, it will also mark the beginning of that long-hoped-for and so necessary development—the expansion of the Museum. This will be an expansion not only in terms of square feet and available area (vitally important as these are) but an expansion in the quality and depth of service for which more space is the necessary prerequisite.

For surely the purpose of the Museum can no longer be defined as merely a repository of artifacts and precious relics. A museum is a living social entity having a life of its own within, yet sustained, refreshed and kept meaningful by the interchange of its life with that of the general community, the people it serves.

Organization

I am pleased to report some considerable progress in the application of the study of the Museum's organizational structure which has come to be known as the Price Waterhouse Report. For the record, the Price Waterhouse Report

was the result of the initiatives taken by the Board of Trustees of the ROM and no other source. In the words of my predecessor as Chairman of the Board, the Board commissioned a study: "To undertake an analysis of the Royal Ontario Museum, and to recommend any remedial measures which may be found necessary or advisable".

The study was carried out in several phases, with a separate volume of the Report covering each phase. As each volume was completed, it was made available to the Ministry of Colleges and Universities and became in effect a public document. The Report was also made available to the Museum staff who set up a study committee to consider its recommendations, a process which is continuing.

Beginning in 1971, the Report has been used as a basic working tool of change in this Museum. A number of recommendations were agreed to last December and have already been implemented. Some of these are: the appointment of an Associate Director, the appointment of a permanent Secretary to the Board of Trustees and the attendance of members of the curatorial staff at Board meetings. There have also been changes in administrative reporting channels and matters of finance. The general policy has been to follow the spirit of the Report in tightening the administration, clarifying functions and responsibilities, and defining authority. In the administration of a museum, efficiency is a desirable virtue, so the Price Waterhouse Report will be under continuing study to provide guidelines in the charting of future progress.

Expansion

Previous Annual Reports have included as a recurring theme the need for expansion of the physical

facilities of the Museum. Some time ago, the Government of Ontario recognized this need and allocated \$12,500,000, over a ten year period, for future expansion.

More recently, the Board has been considering several possibilities to achieve the necessary expansion, and now is progressing toward the stage where a decision can be made. However, although it is comparatively easy to consider theoretical proposals on paper, the consequent implications must be completely determined before the final plan can be prepared.

In the meantime, I am glad to report that space in the Sigmund Samuel Building formerly occupied by the Provincial Government Archives has been made available to the Museum. This will permit a small expansion of the Canadian Galleries and the relocation of the West Asian and Egyptian Departmental offices from the main building.

McLaughlin Planetarium

Since its opening in 1968, the Planetarium has provided a focal point of public interest. The Planetarium Star Theatre presents popular shows which can only be classed as outstanding educational entertainment. On the more academic side, the Planetarium continues to provide its excellent astronomy extension course in cooperation with the University of Toronto.

We note with regret the death of Colonel R. S. McLaughlin. His commitment to the University of Toronto in 1965 to provide the funds both to build the Planetarium and for its continuing endowment, resulted in

the largest single gift that the Museum has ever received. The Planetarium named in his honour will continue to provide a memorial to one of the outstanding Canadians of this century.

Grants, Bequests and Endowments

In addition to the operating funds provided by the province of Ontario, the Museum depends on the generosity of corporations and private individuals to provide funds for the acquisition of new objects or to undertake specific research projects. I am most grateful to all these donors whose names appear elsewhere in this report for their continuing support.

In all of the Museum's programme, we acknowledge with appreciation the steady support of the Province of Ontario, the Canada Council and the Municipalities of Metropolitan Toronto.

Personnel

The Board, the Museum staff, and the members of the Museum owe a debt of gratitude to Mr. R. G. Meech, Q.C., who relinquished the position of Chairman of the Board of Trustees in June, 1971. His term of office covered the three years immediately following the Museum's separation from the University of Toronto, when we were learning to stand on our own. He continues to serve the Museum as an active member of the Board of Trustees.

In June, 1972, the Board saw the retirement of six Trustees: Mr. J. H. Crang, Mrs. D. C. Early, the Honourable Leslie Frost, Mrs. A. J. Grout, Mrs. Edgar Stone and Mr. D. C. Webster and the resignation of Mr. H. Pryce-Jones. As your steward, I wish

to acknowledge with gratitude their valuable contribution to the Museum during their terms of office.

Nine new members of the Board have since been appointed by the Lieutenant Governor in Council. They are: Mr. G. E. Boyce of Belleville, Mr. J. W. Eleen of Toronto, Mrs. W. L. C. McGill of Brantford, Dr. William S. Monk of Bracebridge, Mrs. W. M. Myers of Chatham, Professor F. Ouellet of Ottawa, Mrs. W. O. Randall of Toronto, Mr. W. J. Reeves of Burlington, and Mr. W. Seyffert of Toronto. Mrs. D. S. Rickerd of Toronto has since been elected to the Board by the members of the Museum. With these appointments there is a much broader representation from points of the Province other than Toronto than ever before.

In June of this year, the Board as it was then constituted unanimously terminated the appointment of Dr. P. C. Swann as Director of the Museum. The present Board is actively searching for a new Director. In the interim, Dr. Walter M. Tovell, the Associate Director has been appointed Director, pro tem.

We acknowledge with much appreciation the work of the three hundred and forty curatorial and non-curatorial members of the Museum staff, the many volunteers, and the unpaid research associates, both for their continuing contribution to the worldwide reputation of the Museum, and for bringing the Museum to the people of Ontario every day of the year except Christmas Day.

Future

Museums, in company with many other social institutions of long standing, have been subject to tremendous forces of change in recent years. It has been an exciting period, as the modern Museum has come to

enjoy the support and interest of a larger proportion of the public. As available leisure time and levels of education continue to increase, we can expect that this trend towards greater participation in our activities will increase as well.

This situation presents us with a number of challenges for we must be ever mindful of the fact that the transfer of information and the insight that come of knowledge is a quiet and contemplative process. We will not have fulfilled our proposals if we do not offer the opportunity to linger in silence, to ponder undisturbed.

In our efforts to make the Museum relevant to as many people as possible, we should also remember that each museum must shape its course according to its traditions, its particular strengths and by doing those things that it is best equipped to do.

Above all, we must sustain and encourage the work of our scholars, for it is through the excellence of their endeavour that the excellence of the Museum and the knowledge of its treasures will be made manifest.

The Royal Ontario Museum will not forget its prime task—that of safeguarding and revealing the verities of the past to a public that is ever new. In return, the public will keep the Museum mindful of the realities of the present. The catalyst produced by this interaction will constitute the future, which, we may hope, will be even better than the glorious past.

Noah Torno
Chairman
Board of Trustees

November, 1972

Report of the Associate Director

Museums, once considered to be "the nation's attics" have developed into centres of community life never before dreamed of. Governments recognize the need for such centres and their programmes and thus support them generously. For this, we who work for museums are grateful. The ROM is ideally situated to be a service to the community. It is located next to a large university, viable business and residential districts. But it serves not only the Metropolitan area of Toronto. Some hundred loans were made to institutions throughout Ontario. Visitors and school children, too, come from all parts of the Province.

The ROM is celebrating its 60th Anniversary and is doing so with a wealth of varied programmes which will make the year the most active in the Museum's history. These programmes include concerts, poetry readings, lectures, some of the details of which are given in the report by the Programme Secretary's Office. As an anniversary present, the ROM opened its doors from 5:00 pm to 9:00 pm at no charge throughout the year. This brought such a response from all sectors of the public, and in particular students, that the programme will be continued.

The loans to other institutions, both locally and nationally, demonstrate the Museum's concern for sharing its assets with communities beyond the City of Toronto. As an example, it initiated discussions with the Art Gallery of Windsor for a more permanent type of loan for a new gallery in that institution now in the planning stage. In addition, two museumobiles were purchased for travel around the Province.

Early in the year the Federal Government announced the programme for Democratization and Decentralization of Museum Collections on a national scale and the ROM was invited to take part in the discussions in Ottawa dealing with the details for implementing certain phases of this far-reaching idea.

The special exhibitions, lectures, gallery displays are all that the public sees with respect to the Museum. But much goes on behind the scenes. The eighteen academic departments under curatorial supervision have rapidly expanding collections, the more important acquisitions of which are mentioned elsewhere, and conduct considerable research. The individual departments continue to contribute to the intellectual life of the country and indeed of the world, with publication of scholarly articles and books dealing with their particular disciplines. But particularly impressive, and productive, is the way in which cooperation and liaison on joint research have developed between departments in recent years. Thus, as only one example, ROM archaeologists are gaining benefits from the pollen research conducted by the Geology Department.

The ROM is proud of its curatorial staff and grateful for its accomplishments. And we must also mention those who support them. Each department has trained technicians and secretaries who carry out the more routine duties of departmental operations. There are, too, those many people in administrative, creative and service departments whose specialized skills contribute so much to the Museum's success.

A tribute must be paid to the Board of Trustees of the Museum who serve without compensation and give many hours of their time to discussion of Museum affairs. Their action this year in bringing curatorial representation to the Board meetings has engendered an *esprit de corps* and solidarity to the institution never before present.

The 60th year of the ROM is a great anniversary. The institution is now prepared, more fully than ever before, to respond to the many demands placed upon it by today's complex society. It cannot do so within the present building alone. Expansion is essential. With the increasingly healthy relationship that is developing between Board and Staff, the institution is ready to present a concrete plan for that expansion.

Walter M. Tovell

Auditors' Report

To the Trustees of The Royal Ontario Museum:

We have examined the balance sheet of The Royal Ontario Museum as at June 30, 1972 and the statement of financial operations for the year then ended. Our examination included a general review of the accounting procedures and such tests of accounting records and other supporting evidence as we considered necessary in the circumstances, except as noted in the following paragraph.

Bequests, grants and donations to trust accounts, by their nature, are not susceptible of complete audit verification. Accordingly our verification of receipts from these sources was limited to a comparison of recorded receipts with bank deposits.

In our opinion, except for the effect of any adjustments which might have been required had we been able to completely verify bequests, grants and donations, the accompanying financial statements present fairly the financial position of the Museum as at June 30, 1972 and the results of its operations for the year then ended in accordance with accounting principles generally accepted for non-profit organizations applied on a basis consistent with that of the preceding year.

Toronto, Canada,
August 28, 1972.

Clarkson, Gordon & Co.

Chartered Accountants

The Royal Ontario Museum

(Incorporated by Special Act of the Ontario Legislature as
a corporation without share capital)

Balance Sheet

June 30, 1972

(with comparative figures as at June 30, 1971)

Assets	1972	1971
<i>Operating:</i>		
Cash	\$ 19,935	\$ 93,690
Short-term deposits	297,769	62,816
Travel advances	36,747	62,104
Accounts receivable	26,153	23,406
Inventories at the lower of cost and realizable value	69,752	73,223
Fixed at nominal value—		
Land and buildings	1	1
Contents	1	1
	<u>450,358</u>	<u>315,241</u>
<i>Trust:</i>		
Short-term deposits	777,231	662,184
Marketable securities at cost (quoted market value—\$1,916,000; 1971—\$1,714,000)	1,943,827	1,751,036
Accrued interest	32,109	24,828
	2,753,167	2,438,048
	<u>\$3,203,525</u>	<u>\$2,753,289</u>
Liabilities and Trust Funds		
<i>Operating:</i>		
Accounts payable and accrued liabilities	\$ 228,921	\$ 134,528
General reserve	221,437	180,713
	<u>450,358</u>	<u>315,241</u>
<i>Trust funds</i>	<u>2,753,167</u>	<u>2,438,048</u>
	<u>\$3,203,525</u>	<u>2,753,289</u>

On behalf of the Board of Trustees:

Trustee: Noah Torno

Trustee: John E. Langdon

The Royal Ontario Museum

Statement of Financial Operations

Year Ended June 30, 1972

(with comparative figures for the year ended June 30, 1971)

	1972			1971
	Operating	Trust	Total	Total
Receipts:				
<i>Operating:</i>				
Province of Ontario grants	\$4,000,000		\$4,000,000	\$3,575,000
Board of Education grants	77,059		77,059	86,319
Admission fees	210,572		210,572	207,455
Museology fees and grants	47,939		47,939	26,842
Service departments (net)	20,299		20,299	514
	<u>4,355,869</u>		<u>4,355,869</u>	<u>3,896,130</u>
<i>Trust:</i>				
Bequests, grants and donations		\$ 719,132	719,132	586,157
Investment income		216,000	216,000	187,172
Membership fees:				
Annual		67,035	67,035	50,740
Life		10,367	10,367	10,429
Admission fees		50,106	50,106	48,769
Other		71,395	71,395	141,142
			<u>1,134,035</u>	<u>1,024,409</u>
<i>Total receipts</i>	<u>4,355,869</u>	<u>1,134,035</u>	<u>5,489,904</u>	<u>4,920,539</u>
Disbursements (see note)				
Artifacts and specimens	112,318	312,256	424,574	
Building maintenance	296,168	3,339	299,507	
Equipment	173,007	27,674	200,681	
Supplies	115,683	41,715	157,398	
Excavations	60,581	87,496	148,077	
Gallery renovations	3,125	129,800	132,925	
Contingencies	117,748	925	118,673	
Services	116,037		116,037	
Travel, expeditions	84,480	5,891	90,371	
Exhibitions (net)	48,323	48,699	97,022	
Books and periodicals	69,486	383	69,869	
Publications	38,870	41,429	80,299	
Advertising and publicity	49,710	11,129	60,839	
Other	37,106	49,671	86,777	
Salaries and wages	<u>2,992,503</u>	<u>58,509</u>	<u>3,051,012</u>	
<i>Total disbursements</i>	<u>4,315,145</u>	<u>818,916</u>	<u>5,134,061</u>	<u>4,902,385</u>
Excess of receipts over disbursements	40,724	315,119	355,843	18,154
Balance of general reserve and trust funds at beginning of year	<u>180,713</u>	<u>2,438,048</u>	<u>2,618,761</u>	<u>2,600,607</u>
Balance of general reserve and trust funds at end of year	<u>\$ 221,437</u>	<u>\$2,753,167</u>	<u>\$2,974,604</u>	<u>\$2,618,761</u>

Note: The 1972 figures for disbursements have been reclassified and the corresponding amounts for 1971 are not readily available.

Chief Archaeologist

Dr. A. D. Tushingham

The Chief Archaeologist reports a most successful year in which plans long made have at least begun to be realized, and some of our serious space problems have been eased.

Central and South American Projects

On July 1, 1971 Kent Day joined the staff to be field director of the Peruvian project. He immediately inaugurated a survey programme in the Lambayeque valley of Northern Peru which would provide general information on the communications, trade, and settlement patterns of the region in the past and would direct us to the choice of a site for intensive excavation and study. At the same time, a geological study of the area was undertaken by Mr. Ted Reimchen, a doctoral student at the University of Western Ontario and his wife. Mr. Day's reports are now in hand and will provide the basis for the Museum's future research in the area. His cross-appointment to the department of Anthropology at Trent University strengthens collaboration with that institution and has made it possible for Dr. Peter Harrison to carry out his survey in Mexico in the spring of 1972.

It had been decided that the ROM's interest in Mexico should find its expression in work in the Chetumal region of the territory of Quintana Roo. This part of the Yucatan peninsula has been relatively untouched by archaeologists but is a promising source of information on the Lowland Maya whose culture has been studied over the past decade by Dr. Pendergast in adjacent British Honduras. Dr. Harrison has now located an important Maya site which we hope will be the focus of the ROM activity for the next six or seven years.

While these two new projects are gradually getting under way, Dr. Pendergast has been completing his final report on the excavations at Altun Ha in British Honduras. It has been our good fortune, over the past year, to have Dr. Stanley Loten on our staff. His many years of experience at the University of Pennsylvania excavations at Tikal in Guatemala have brought to the final studies of the Altun Ha material not only the skills of a consummate architectural draftsman but the knowledge and insight resulting from close study of the Maya culture and its architectural manifestations over many years. Drs. Pendergast and Loten spent three weeks in British Honduras in April-May 1972 putting the finishing touches to the plans of that site. We are happy that Dr. Loten's appointment to the staff of the School of Architecture at Carleton University will maintain the close ties he has built up with ROM. Dr. Pendergast has also virtually completed plans for inaugurating his new project at Indian Church (henceforth to be called by its ancient Maya name, Lamanha) in British Honduras in January 1973.

In the financing of the above-described projects in pre-Columbian America, we are happy to express our thanks for assistance from Canada Council and the Ivey Foundation.

North American Projects

Dr. Walter Kenyon had planned to devote the summer and autumn of 1971 to the definitive publication of various sites which he had dug over the last few years. His plans, however, had to be modified to accommodate demands for brief field projects and the need to keep in touch with other work in which his department was involved. In May 1971 he excavated a multiple burial of the Blackduck period

(c. A.D. 1200) at Hungry Hall in northwestern Ontario, visited other sites and collections in the area, and arranged for the loan to small local museums in Fort Frances and Emo of material excavated by the ROM in their vicinities.

A happy archaeological collaboration (apparently the first) between the ROM and the National Museum of Man in Ottawa occurred in the summer of 1971 when Dr. James Wright directed a joint project at the Nodwell site near Port Elgin, Ontario. During that summer also, Mr. Burke Penny directed a survey of the Thomson site near Coldwater, Ontario, and spent the winter of 1971-72 at the ROM studying the large collection of material from that site already at the Museum. The results of his ceramic analysis are now in the hands of our editorial board. Mr. Victor Konrad carried out, under Dr. Kenyon's general supervision and with support from the Opportunities for Youth programme and Metropolitan Toronto and Region Conservation authority, a survey of the archaeological resources in the Metropolitan Toronto area, and Bill Finlayson continued his research at the Donaldson site. In the spring of 1972, at the invitation of the Indian band on Sugar Island in Rice Lake Dr. Kenyon and John Prideaux undertook a survey and excavations of the important cultural remains of the Island, in part known to, and investigated by, the ROM many years ago. The work will continue through the summer of 1972.

Dr. Kenyon's underwater work was virtually confined to a brief project on the French River in the summer of

1971 during which six flintlock muskets (and nothing else) were discovered. It is sad to relate that ACCWA—the Archaeological Council for Canadian Waterways, established in 1965 as a vehicle for collaboration between the ROM and the various scuba clubs in the province—finally was dissolved. Through no one's fault, the Council had been so unproductive of substantial results that there was general agreement that it did not warrant the effort expended to maintain it.

With the aid of a Canada Council grant, Mr. Selwyn Dewdney carried through a methodical analysis and consolidation of all the data he and others have acquired over the years on the location, condition and recording of pictographs and petroglyphs in the Canadian Shield area. The ROM is now a useful repository and source of information for all interested in this fascinating but difficult study. Mr. Dewdney continues his work on the dating of the glyphs which is involving many disciplines far beyond the normal scope of archaeology and art.

During the summer of 1971, and again in the spring of 1972, Dr. Peter Storck has pushed forward his research into the Palaeo-Indian and Archaic periods of Ontario prehistory. He has been carrying out a methodical survey of all gaps through the Niagara escarpment in the search for early man sites, and has also studied selected areas in Northern Ontario. One unexpected result was the discovery of a Northwest Company trading post at Fort La Cloche. His imaginative and well-planned research will, hopefully, produce the concrete results we desire.

Mr. Michael Lee, who has for several years been in charge of a metals laboratory for the Ontario archaeologists has now established, with the interest and support of Mr. Bernard Leech, head of our Conservation department, a wood treatment unit for the slow dehydration and consolidation of wood from underwater sites or sodden foundations.

England and The Ancient World

Mr. Francis Pryor, the director of our prehistoric project in England, inaugurated a long-term study of the Fengate area near Peterborough, England, in the summer of 1971. Remains of the Bronze and Iron Ages—particularly a series of parallel trenches which may have been defensive—have been found. The work was resumed in the spring of 1972 and much earlier, Neolithic, material is now being found. The field work, with a staff of 17 (most of whom are Canadian students), is probably the largest archaeological project in England at present and has won both the praise and financial support of the British Ministry of Works.

Mr. Michael Gough conducted, in the summer of 1971, brief seasons of excavation and recording at the Byzantine Monastic site of Alahan in Turkey and in a late Roman Villa at Knossus in Crete. A final season of field study and preparation for publication will be undertaken at Alahan in the summer of 1972.

Dr. T. Cuyler Young, Jr. directed another season of excavation at Godin Tepe in Iran in the summer of 1971. A complementary excavation at the site of Seh Gabi was financed by the Harvie Foundation of Calgary and was under the direct supervision of Dr. Louis Levine. The results of these two projects are given in greater detail

under the report of the West Asian department.

During the past year, also, the Museum provided some financial assistance for a project at Meroe in the Sudan directed by Dr. Peter Shinnie of the University of Calgary, to the work of the Egypt Exploration Society at Saqqarah, to the University of London School of Oriental and African Studies for the excavations at the Islamic site of Ghubayra, and to the British Institute of Persian Studies for work at the Parthian site of Shar-i Qumis.

Mr. D. B. Webster, Curator of the Canadiana department, gives more detail on the expedition to investigate the archaeological history of a French 18th century manor-house at Senneville near Montreal in his annual report.

The Chief Archaeologist, with heavy responsibilities for the publication of the joint British School-ROM excavations at Jerusalem, was granted a six-month sabbatical during the winter of 1971-72 to concentrate on this. The progress made was important but the end is not yet in sight. In his absence, Dr. Pendergast generously carried out his functions in an expectably efficient and imaginative manner.

During the past year the British and European Bronze and Iron Age collections of the Museum, which had for the last eight years been in Dr. Tushingham's custody, were formally transferred to Mr. Pryor's care. He has already begun to draw up a catalogue raisonné of the British material preparatory to publishing it. In the

meantime, some of our finest British, Irish and Hungarian bronzes were brought forth for display in the "Hidden Treasures" exhibition. For the same show, Dr. Pendergast provided pottery, figurines and other pre-Columbian material, most of which has never been on display; and Dr. Storck organized an informative exhibition of flints from early man sites in the province.

Lectures

Members of the archaeological staff collaborated once more to give lectures on their investigations in various parts of the world for the Museum's "Digging into the Past" series, and also contributed to the lecture programme sponsored by the local society of the Archaeological Institute of America. Some continued their cross-appointments and lectures in the University. Dr. Tushingham chaired a session of the Cyprus symposium held at Brock University in October 1971, and in February 1972 gave a double series of lectures for the Archaeological Institute of America in eight cities of the American Middle and Far West. In May he journeyed to Madison, Wisconsin to deliver a

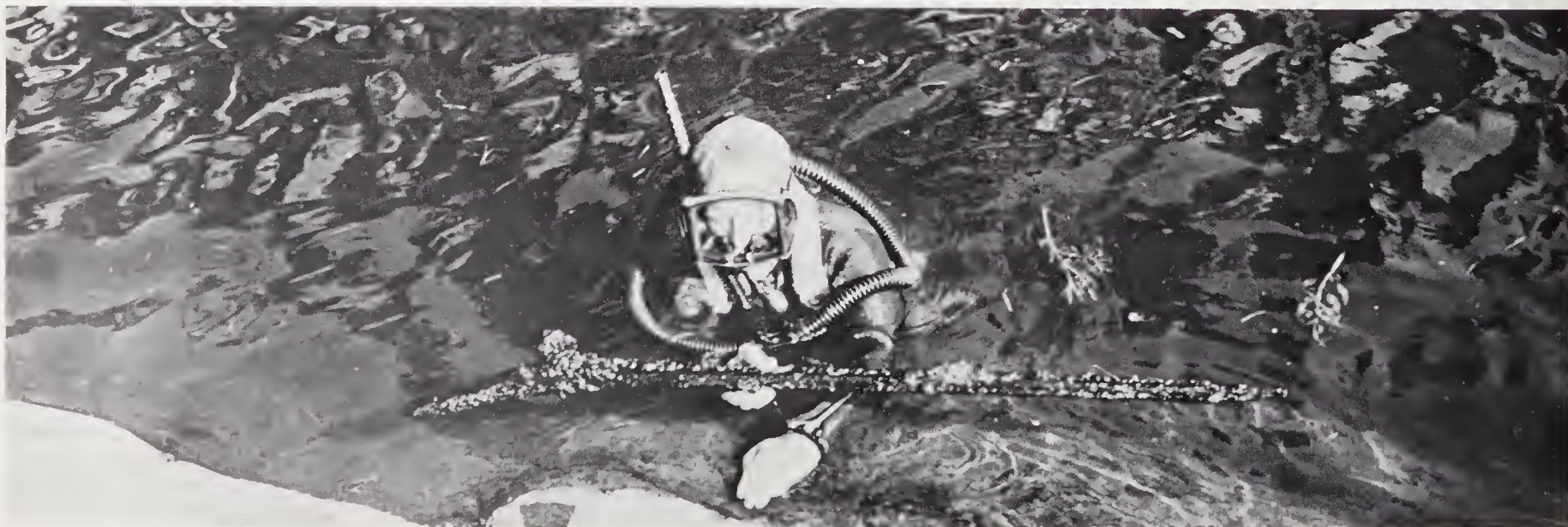
lecture under the auspices of the Department of Hebrew and Semitic Studies of the University of Wisconsin.

Protection for Ontario's Archaeological Sites

During the past year, Dr. Storck played the chief role in a low-keyed campaign to curtail the serious depredations being made on Ontario's archaeological sites. Attempts were made to alert the provincial government on the widespread destruction of this non-renewable resource by unrestricted highway, pipeline, dam and other major construction projects. It is hoped that legislation can be introduced which will ensure that qualified archaeologists can assess in advance the archaeological potential of any area which is due for "development" and can make arrangements either to excavate or bypass the threatened site. Further, the deliberate spoliation of sites to obtain antiquities for sale must be halted, and the innocent (but almost as damaging) excavation of sites by non-professionals, even from the highest of motives, discouraged. In all cases, the valuable archaeological heritage of Ontario is being dissipated or wantonly destroyed. While much remains to be done, it is cheering to report that some progress has been made. The struggle will continue.

After many years of complaint about lack of space, it is good to report that the past year brought some small relief. The departure of Provincial Archives from the Sigmund Samuel building and the cooperation of the University of Toronto have provided some additional space in that building for ROM personnel. One result is the move to new quarters there of Dr. and Mrs. Pendergast, Mr. Francis Pryor, and five technicians. The improvement of their facilities has one unfortunate corollary: the separation of the Chief Archaeologist's staff in two buildings. We can only hope that the lack of physical contiguity will not affect too seriously the efficiency of the Office.

Once more, the Chief Archaeologist and his staff express to the Chairman and Members of the Museum Board, and to the Director, administrative and service staffs of the Museum their personal appreciation for the assistance, support and encouragement which have been evidenced during the past year.



Canadiana

Donald B. Webster, Curator

The most important single event of the year has been the occupation by the Museum of the entire Canadiana building, following the long anticipated transfer of the Ontario Archives to new quarters. Planning and final determination of space allocation required considerable thought and time, and resulted in the Egyptian and West Asian departments, the Central American section of the Office of the Chief Archaeologist, and Conservation's painting conservator, moving to the Canadiana building.

The Canadiana department fared tolerably well in the distribution, gaining two new offices, a library room which makes the 5,000-volume library fully usable, an additional gallery on the second floor of the building and, at long last, a proper archaeological lab and workroom, replacing the walled-off waterless area at the end of the South Gallery. At the same time, however, the Department lost the small Samuel Gallery in the main building, with the mandate of absorbing, with all it contained, a Quebec panelled room, long ago closed for collection storage, as well as the extensive McCrea model collection. Fully half of the increased gallery space was thus pre-committed to permanent installations (panelled room and McCrea models). While the archaeological situation has greatly

improved, basic collection storage is still limited to a single storeroom, and is tighter than ever. This must now be alleviated during the coming year, either through outside storage of secondary material acquired largely for teaching and study rather than exhibition purposes, or by selective but reasonably numerous disposals, or both.

The new upstairs gallery, with completion now expected by early winter, will include, fully furnished, the panelled room from the maison Belanger at St. Jean Port Joli. In addition there will be two wholly new separate sections, devoted to Quebec decorative carving and to Canadian ceramics, of which the Department has sizable collections never previously displayed.

Excavations at Senneville

During the summer of 1971 the Curator carried out a three-month excavation, with a total crew of 15, at the site of a large and early French fortified manor house at Senneville, Quebec. The project was completed in September with excellent results, and described in Archaeological Newsletter No. 75 and a *Rotunda* article (Summer 1972). The final report, covering both the Senneville manor and the similar Ile des Soeurs excavation of 1969, is expected to be a bilingual publication, with both English and French text, through a grant from the Quebec Ministry of Cultural Affairs. A 20-minute colour film was also completed, with a French language version being arranged by the Film Office of the Ministry of Cultural Affairs.

In August, Miss Janet Holmes with three people released from the Senneville project began exploratory excavations at the site of the Como Glassworks (1842) at Como, Quebec, one of the earliest in Canada. The excavation was completed in June, and the work uncovered well-preserved remains of a complex industrial structure, with great quantities of glass artifact fragments and cullet.

Special Exhibitions

Special South Gallery exhibitions during the year, in the Department's programme of quarterly rotation from the large and excellent picture collection, included *Plotting the Land of Ontario, 1564-1919*, from May 6 to September 6, as a joint exhibition with the Alexander McDonald collection and the Ontario Department of Public Records and Archives. *Transportation in Early Canada* ran from September into December, and from mid-December through March the quarterly exhibition focused again on the ever popular Krieghoff paintings in *Krieghoff and his Contemporaries*.

During this period, as part of the Jubilee Year programmes, the Department had two extremely well-attended and successful open-house nights. The final exhibition of the year was *Early Canadian Topographers*, from March through mid-June.

At the end of the year, the South Gallery was temporarily closed for completion of the McCrea models' new case installation, occupying the former archaeological area, and for a long overdue replacement of fabric wall covering.

Exhibition loans went out during the year to nine different areas, ranging from the Maritime Museum of British Columbia to the National Gallery of Canada, and included over two hundred individual objects. Some loans, such as the department's continual contributions to the circulating picture exhibitions of the Art Gallery of Ontario, or to special exhibitions at major institutions, are most desirable. In spite of new and tighter loan regulations and procedures, we still have a problem of loans which, no matter how watered down, must be approved largely due to political considerations, but which on their own merits would have low priority.

Teaching and Lectures

The Department's teaching and outside lecturing load is heavy and increasing, but like desirable loans, publications, television and films, we consider this an elemental service. University of Toronto teaching commitments included the Curator's graduate course, and the Canadiana portion of the undergraduate decorative arts course, now handled by Miss Holmes. The Curator has lectured as a part of series at Sir Sandford Fleming College (Peterborough and Cobourg), at McMaster University, and at the Universities of Toronto and Guelph. Mrs. Ignatieff lectured at some of the same, plus Seneca College and Aurora Community College. There have as well been numerous single lectures and television programmes or appearances. We have also had a part in museum-arranged series, such as "ROM Field Work," and the annual Canadiana series, done both at the Museum and this year at the Etobicoke Public Library. Outside lecturing has now become so continuous, and so routine, that it becomes difficult to reconstruct fully everything that has occurred during the year.

No more can or do we keep detailed track of daily individual phone inquiries, people bringing objects for identification, or researchers to use the library or picture collection. This individual service function is always heavy, progressively increasing, and is now in the range of well over a

thousand calls and several hundred objects brought for identification each year. Except in rare instances we decline all requests to come and examine an object at a caller's home. Experience has also shown that attempts or policies to restrict object identification to one day a week, or even to require advance appointment, in practice simply do not work. Canadiana is the only department where a visitor can reach the offices without inquiry or intervening doors after entering the building. We do not really feel that we can legitimately turn away, or refuse to see, people who appear without notice, as some do, often from a considerable distance. This is simply part of the roster of continuing problems.

Gifts and Purchases

The Department received during the year a total of 63 gifts from 29 different donors. Of these, the objects certainly of greatest importance are a fine 18th century Quebec Louis xv armoire and an ornately carved tall Easter candlestick, both gifts of the Laidlaw Foundation, and a fine silver ink well stand of about 1800, by Robert Cruickshank of Montreal, a gift of the Members' Committee. Two particularly rare pieces of Canadian pottery were donated, a fine salt-glazed crock by F.

P. Goold of Brantford, with an elaborate incised decoration, given by Dr. and Mrs. William McGill of Brantford, and a unique signed and dated (1843) earthenware jar by John Kulp of Grimsby, from Mrs. Margaret Sorenson of Port Colborne.

We are continually soliciting gifts of particular objects well known to us, and also receive from time to time desirable items as unsolicited donations. Experience has shown, however, that the great majority of unsolicited offerings are neither within the subject range to which the collections must be limited, nor of the qualitative level we must maintain. In the final analysis we accept less than one offering in ten. This is occasionally upsetting to prospective donors who find it difficult to

understand that we cannot become a repository—a storage facility—for objects for which we have no conceivable exhibition or academic use.

Acquisitions by purchase have totalled 162 objects during the year. Though the collections of the Department are very incomplete in a great many areas, acquisition is becoming increasingly difficult, due both to the growing scarcity of desirable possibilities of high quality, and also to the fact that antiquities prices are appreciating much more rapidly than the funds available to us. Excluding cash gifts for specific objects, we have expended for acquisitions during the year \$23,697. Of this, \$13,747 has come from departmental accounts, primarily the Sigmund Samuel endowment, and \$9,950 from

Museum Funds and the Purchase Trust. Fortunately, there are few items within a Canadian context which will approach European or major American prices. However, when a truly prime picture comes up, often at auction, such as the highly promoted Cornelius Krieghoff painting of *The Royal Mail Crossing the Ice*, sold last spring through Sotheby's for \$27,000, attending the sale is simply a spectator sport and an exercise in frustration, for in collecting for the Museum, we cannot approach that financial league.



Conservation

Bernard Leech,
Associate Curator-in-Charge

This year has been a difficult but a progressive one. On the one hand the space problem is now acute, and on the other, in addition to the normal treatment and examination of objects, preparation of material for the "Hidden Treasures" exhibition taxed facilities to the limit.

The full time complement has remained at ten, with volunteers, interns and museology students bringing the strength up to 13 at times. It should be noted that we are unable to fill two full-time positions, for which we have a budget provision, due to lack of space.

We have attempted to develop textiles conservation with the return of Mark Burnham from one year of study and training in Europe. It will not be possible to realize reasonable potential in this direction until the planned move of paintings conservation to Canadiana releases space for this purpose.

Liaison with Art and Archaeology department technicians continues to be strengthened. Technicians have carried out conservation work in this department under supervision, as well as in their own areas. An example of this is the use of the carbowax consolidating bath for water-logged wood in Archaeology which has been brought into operation by Michael Lee in cooperation with this department.

Visitors, both singly and in groups, have taxed us sorely this year. Reluctantly, it has been decided to severely limit such visits until space improvements allow safer movement within the department.

Innumerable TV crews, reporters and journalists have been in the department to take photographs, interview staff and make films. This is no doubt a sign of the times, and a tribute to the fine conservation work being carried out.

Again a large increase in queries by letter, telephone and in person has been experienced. This in part may be attributed to the coverage given by the media to conservation this year. Consultations are estimated to be running between 20 and 30 per week.

Research Activities

Research activities, particularly in the analytical laboratory, continue to be productive. The technical study of the Chinese Bronze weapons was discussed at an informal seminar in December 1971, with Professor C. S. Smith, M.I.T., Dr. W. T. Chase of the Freer Gallery laboratory and Mr. Wan Chi' Piao, expert in Bronze casting from Taiwan in attendance.

Metallographic and ancillary studies have revealed many interesting and unexpected features which will require more investigation before a clear picture emerges. An initial survey of the chemical composition of some six hundred weapons is almost complete and will allow some tentative groupings to be made.

More samples from archaeological specimens have been sent for carbon dating to both commercial and college laboratories. We expect more precise results from the Ryerson Polytechnical Institute facility shortly, as more experience is gained.

Upwards of 40 samples from our Far Eastern and Greek and Roman collections have been sent to the Oxford laboratory for thermo-luminescent dating. Our cooperation in this programme is most important for it may lead to the Oxford laboratory being able to refine its estimates on dates. Results so far are most encouraging.

Analytical Laboratory

Laboratory analyses on ceramics, bones, pigments, metals, glass, wood and textiles have been carried out, albeit in a somewhat rudimentary fashion. Additional space for the establishment of a general chemical analytical laboratory would enable us to make considerable headway with the more than 300 technical requests which constitute a backlog in this direction.

Bowl from British Honduras dig; sherds cleaned, sherds assembled, missing areas filled with plaster, completed.



Galleries and Storage Areas

Records of temperature, humidity, lighting and vibration continue to demonstrate the adverse environmental conditions within the galleries and storage areas of the museum. Some improvements have been made in particular areas as critical needs arise. It is particularly regrettable that we seem unable to improve the conditions for the textiles storage in the third floor S.W. wing.

Regular fumigation in Ethnology seems to be holding problems in check, although the addition to the collections of new materials from Africa and elsewhere has proved troublesome, several fumigations proving necessary in order to eradicate exotic insect species. An outbreak of moth infestation in a "closed" display case which contained P.D.B. crystals as well as 'moth-proofed' felt display material shows that we must never relax our vigilance. It is also a clear warning to avoid the use of unsuitable materials, e.g. 'moth-proofed' felt.

The year has seen a steady flow of work through the conservation laboratory. Some highlights should be mentioned: treatment of the Far Eastern Musical Instrument collections; preparation of specimens for the new African gallery in Ethnology; and the treatment of a collection of silver, gilt bronze and iron objects from Far Eastern revealing unexpected beauty and craftsmanship; a difficult and time-consuming problem, the successful treatment of an oil on paper painting "The Assumption" by Wm. Berczy was prominently featured in the conservation section of the "Hidden Treasures" exhibition.

Conservation of paintings is expected to regain full momentum when the move to Canadiana is completed.

It has not been possible to bring textiles conservation into full flow, although many small and delicate pieces or fragments have been successfully treated.

Attempts have been made to keep a more accurate record of vandalism, theft and accidents for our own records. This is not always possible, for every incident is not necessarily reported to us. Indications are that accidents and minor vandalism in the galleries have increased, but theft has decreased. Guard strength should be increased together with the introduction of physical security techniques. Poorly designed methods for the safety of objects may have the effect of concentrating vandalism, and increasing damage or the prominence of such damage.

Lectures and Travel

Lectures, and attendance at technical gatherings occupied the staff at various times through the year. Mr. Leech lectured at the Society for Applied Spectroscopy, St. Louis, Mo., in October, in the ROM Science series in February (repeated twice, more informally), and at the Annual Banquet, Kingston Chapter, American Society for Metals, in April. He, Mrs. Phillimore and Mr. Dudley addressed the students in the Museology course, and Mrs. Phillimore spoke on painting conservation to the Jewish Council of Women, Toronto, in February and to the Cooperstown Graduate Programme, N.Y., on general conservation in May. Among other travels, David Dudley attended the 2nd International Graphischen Restauratorenkongress, Budapest and Vienna, in September; Mr. Leech, Mr. Chalmers and Mrs. Jack attended the

annual meetings of the I.I.C.-A.G. in Delaware in June, and Mrs. Phillimore and Mr. M. Burnham attended a course on Microscopy for Conservators, McCrone Institute, Chicago, in June. There were also meetings in Ottawa, two at the National Gallery of Canada, at one or another of which Mr. Leech, Mr. Dudley, Mrs. Phillimore and Mrs. Jack were present.

Over 1,000 objects are recorded as having received treatment and attention during the year. If we take into account such things as cleaning silver (European and Canadiana), and preparation of objects for the "Hidden Treasures" exhibition, it is likely that the above figure would be around 1,600 objects treated. Long-term treatment of 250 objects continues.

It is clear that we have reached the limit of what is possible under the present cramped conditions.

Egyptian

Dr. Nicholas B. Millet,
Associate Curator

ROM's Diamond Jubilee has coincided with two anniversaries of importance in Egyptological history, the 50th anniversary of the discovery of the tomb of Tutankhamun in 1922, and the 150th of the decipherment of the hieroglyphs by J.-F. Champollion. These occasions have been the subject of much formal celebration in London and Paris, where exhibitions are currently running, but have also had their effect locally in an increased public interest in things Egyptian. The result for the Department has been an unprecedented number of objects brought in for identification, and inquiries ranging from silk-screen artists in search of motifs to earnest interrogations from high-school students about the chronology of the Eighteenth Dynasty.

Gallery work has been much interfered with by the demands of the Diamond Jubilee celebratory exhibitions. However, the replica of an Eighteenth Dynasty tomb in Gallery Five is now open to the public and has had a gratifying success, particularly with the younger age groups for which it was intended.

Gifts and Purchases

The year has been a good one for acquisitions, and many gaps in the collections have been filled, largely by virtue of the fact that a certain amount of Egyptian material has been appearing in the public auction houses of North America and Europe. The first of this year's acquisitions was a tomb relief of the Heracleopolitan Period (Dynasties IX-X, c. 2100 B.C.), belonging to a courtier named Yeni or Meni. The piece is of especial interest in that it comes from the Memphite

area and demonstrates the survival of the artistic canons of the old capital of the country in a period of political weakness and division, when the sculptors' art in most parts of Egypt was suffering a phase of extreme provincialism. The ROM's annual contribution to the Egypt Exploration Society of Great Britain brought us in return a fine selection of excavated and therefore well-documented material, including some fine bronzes, pottery, two bird mummies (specifically requested for a projected reinstallation of the animal mummy display in Gallery Five), pottery, and small objects. Particularly notable are an excellently preserved bronze figurine of the goddess Isis nursing the child Horus, one of the largest solid-bronze castings known from the period, and a hard limestone figure of a cynocephalus baboon, a welcome addition to the Department's collection of animal representations. Both of these, as well as other pieces from the EES gift, were displayed in the "Hidden Treasures" exhibition. From Mr. P. B. Ennis of Toronto comes an item of ancient Egyptian military dress in the form of a mussel-shell pendant badge inscribed with the name of one of the Senwosret kings of the Twelfth Dynasty, probably Senwosret I.

Material from Egyptian Nubia

A major accession of archaeological material has been arranged with the National Geographic Society of Washington, D.C. Up until the present the Society has been holding the objects discovered by Dr. Millet's expedition at Gebel Adda in Egyptian Nubia. This site, which was in use from A.D. 250 until approximately 1800, was explored from 1962 to 1966 by Dr. Millet for the American Research Centre in Egypt, Inc. Since the Centre has itself no facilities for storage or display of objects, the

Society, which had contributed generously to the project, offered to house the material. Upon Dr. Millet's request, the finds have at last been assigned to the ROM on the basis of an indefinite loan, with a small representative collection remaining in the Society's keeping for display purposes. The material comprises some three and a half thousand registered objects of various periods, together with a considerable quantity of unregistered study material. Since we will have in the Adda materials a comprehensive archaeological collection representing the entire sweep of later Nubian history, and since Mr. Mills's projected work in the Sudan will certainly supply material for earlier periods (see below), the ROM will ultimately be able to boast a Nubian cultural history gallery second to none. The material will be housed in the Department's new study and storage area in the Canadiana building, where it will be studied and the final publication, long overdue, will be prepared, and where the finds will be available for study by the growing body of Nubian specialists, an area in which Canadian scholarship is very strong.

Research and Records

In the Department's offices the task of bringing up to date the records and files continues in the able hands of Mrs. Annette Gromow, departmental secretary. The files, photographic records and slide records are growing rapidly, and the collection of slides has grown by about 500 over last year.



The God Thoth. Cynocephalus baboon. 4th century B.C.

Quite recently arrived and not yet studied are three reliefs acquired at a Swiss auction in May. The largest is a sandstone tomb relief of late Dynasty xxvi (500 B.C.), from the now lost tomb-chapel of the Steward of the Divine Votaress, Horsîêse. He is represented in the normal way seated at a table of offerings while his son and successor in office, Sheshonq, performs the service before him clad in the characteristic dress of his rank. A series of miniature figures of offering-bearers adds life to the scene, and in view of a similar motif on the Heracleopolitan relief mentioned above provides an interesting example of continuity and tradition in Egyptian art. The other two reliefs are of small size but great interest; both are of the Amarna Period, an episode in Egyptian artistic history under-represented in our collection. One is a charming study (from a large scene on a temple wall) of a man carrying waterskins, probably to workmen engaged on a project. The second represents a bowing courtier wearing the characteristic formal dress of the period. The provenance of both pieces can be confidently said to be the site of Tell el-Amarna, the capital city of king Akhenaten (1379-1362 B.C.).

A minor article of funerary equipment recently purchased also deserves mention. In the very latest period of Egyptian history, it was the custom to place in the burial chamber a so-called Osiris mummy, a miniature figure moulded of earth or clay, wrapped in linen bandages and lying within a small carved and painted wooden

coffin. The object is thought to have commemorated somehow the rebirth of the slain god Osiris, and to emphasize the identification of the deceased with the divinity. The ROM has lacked an example of these curious objects, but has now acquired an excellent example from a Toronto dealer, believed to be of the Ptolemaic Period. It too is destined for display in Gallery Five as part of an exhibit on funerary religion and the Osiris myth.

The Department has been very lucky to secure on a part-time basis the services of Mrs. Loeta Tyree, a graduate student and doctoral candidate in Minoan archaeology, as a volunteer. Mrs. Tyree has among other tasks made a study of storage requirements as they exist at present. Beginning in January, however, she had devoted most of her time to research and study on the material for the Department's minor exhibition for the third floor rotunda, scheduled for the end of July, and entitled "The Fleet of an Egyptian King." The numerous limestone relief fragments which will be used to reconstruct the scene of King Menthuhotep II's river fleet have had to be drawn and studied, and endless time has been spent on the calculations of scale and so forth. The working drawings have been made by Mr. N. Wasiliw, department technician, who is now at work on the final drawings. Altogether some 300 man-hours have already gone into the project, and more work remains to be done.

Lectures and Teaching

Miss Winifred Needler, Curator Emeritus, has almost completed the preparation of her manuscript for the Brooklyn Museum on the predynastic antiquities in the Department of Ancient Art there. Dr. Millet pursues his researches on the decipherment of the ancient Meroitic language, which have taken him to East Berlin and Paris to attend conferences in this suddenly growing field of study. Dr. Millet also gave a lecture on the subject of "Desert and Valley—the Two Worlds of the Egyptian" in the art and archaeology curators' series for the Diamond Jubilee celebration. During the academic year he also had teaching duties in the Department of Near Eastern Studies of the University of Toronto, teaching one graduate course and parts of two other courses on the art and archaeology of ancient Egypt.

Newly appointed to the Department's staff is Mr. A. J. Mills, an Egyptologist and Sudanologist with more than ten years' field experience in excavating. Mr. Mills, a graduate of McMaster University and holder of the Diploma in Egyptian Archaeology from University College, London, comes to us from the Sudanese Department of Antiquities, and is one of the few westerners intimately acquainted with the sites of the northern Sudan. It is expected that Mr. Mills will embark on a survey of other areas of interest to him with the aim of excavating sites of earlier periods, with particular reference to Sudanese contacts with other parts of Africa in early antiquity.

The Egyptian Department is scheduled to move its entire office and storage/study operation to the

Canadiana building sometime in July. Although it will be difficult to be divorced physically from the main building and galleries, the accession of space for study and storage so gained is absolutely essential in view of the Department's increased staff, the enormous increase in study material such as the Gebel Adda finds, and the expectation of field work in the near future.

The ROM is in fact already involved in a sense in active field-work in the Sudan, as a result of its financial support to the excavations in being at the site of Meroe, the capital of the ancient Meroitic Empire. The expedition, from the University of Calgary's Department of Archaeology, is headed by Prof. P. L. Shinnie, former Commissioner for Antiquities in the Sudan, an acknowledged pioneer in the relatively undeveloped field of Sudanese archaeology. Prof. Shinnie informs us that the season recently over may be his last at this site, and we await further word from him on his plans.

Ethnology

Dr. E. S. Rogers, Curator

The Department of Ethnology has continued and expanded its previous programmes and at the same time has branched out in new directions. Collections continue to be assembled, loans made, research and teaching undertaken, public requests dealt with, government assistance given and a greater involvement with the Native people pursued. All aspects are of equal importance although perhaps most gratifying is the concern shown by the Native people for the Department and their involvement with it.

The Department was involved in the Special Exhibition, "Hidden Treasures," that opened this Spring. The Department's involvement was the preparation of the Introductory Section showing Native people in traditional costumes representing the various cultural areas within Canada. Mrs. K. Wood was responsible for the preparation and supervision of this part of the exhibition. In addition there was a showing of paintings of Native Life in Northern Ontario by Mrs. Susan Ross of Thunder Bay in the Lower Rotunda.

Work on the Galleries was practically non-existent except in one instance. It was possible to install a new gallery of West African ethnographic material. Purchase of the material was made possible through a donation by Imperial Tobacco Company of Canada. Again, Mrs. Wood was responsible in large measure for seeing to the installation of this Gallery and in preparing an article relating to the Gallery for ROTUNDA.

Gifts, Purchases and Loans

Over 600 items were added this year to the collections. Greatest attention was given to acquiring some 450 items from West Africa, making this one of the best represented areas in the Department's holding from anywhere in the world. In addition, there were more than 50 items from other parts of Africa and a small collection from Oceania. For the Americas some 50 items representing the North American Indian and some 20 items from South American Indians were acquired.

In addition, there was the gift of 82 Eskimo prints and the purchase of some 15 paintings by Indian artists. Some five Indian artists are represented in the collections, the most notable acquisition being 11 paintings by Norval Morrisseau made possible by the Members' Committee.

The demand for loans this year increased greatly and nearly two a month were made. Many more could have been made if time and staff had been available.

All of the work involved in the processing and care of the collections was ably undertaken by Mrs. Wood and her staff.

Teaching and Public Service

Another important aspect has been the use made of the collections for materials in teaching by Mr. Basil Johnston. At the same time he is developing written material regarding particular items of Indian origin to explain their meaning and significance to the Native people. This is a new and rewarding adventure. This year Mr. Johnston appeared on television in a programme entitled "Indian Values" and acted as consultant for a series on

Indian History. In addition, he participated in the radio programme "Our Native Land."

Dr. H. Fuchs acted as consultant to the documentary on the Yanonami Tribe living in South America in a series entitled "The Nature of Things" on CBC.

It is impossible to document in any appropriate way the work carried on in the sector of public service. Mrs. Wood continued to handle the inquiries that arrived, the people who sought information and an increasing number of requests for photographs of material items. Mr. Johnston continued to give lectures in the schools both in Toronto and outside. His extensive travels are presented in the table (page 90). He also has been involved in handling public inquiries and those made by various organizations and university students.

Dr. Fuchs in the public sector conducted a 21-day tour of 14 participants through Mexico and parts of South America visiting Museums and archaeological and historical sites.

In March the Museum in conjunction with the Mariposa Festival held an open evening to dedicate a birchbark freighter canoe which had been built during the previous summer and later donated to the Museum. Miss Alanis Obomsawin organized a programme which included Cesar Newashish and family from Manowan, Quebec who had constructed the canoe. Others who participated included Johnny Yesno, Bill Reid, Bill Lightbown and his son and Mrs. Josephine Beaucage.

Museumobile

Finally, near the end of this year the Department was given a Museumobile to tour the Indian communities in Southern Ontario during the next year. It will portray the Cultural Heritage and Native History of the Native people of this part of the country and show what they are doing at the present time. It must be pointed out that the Native people themselves contributed the theme for the Van and have contributed their time and energy to implement this programme. Mr. Johnston is also deeply involved in preparation for the Van.

Two more ROM Charts were printed: "Quill Work" and "Toys and Games."

Lectures and Travels

Mr. Johnston was invited to attend the American Indian Scholars Conference in Aspen, Colorado in September and Heritage Ontario Congress in Toronto this June.

Dr. Taylor attended the Fourth Conference on Algonkian Studies at Big Moose Lake, New York in September where he gave a paper entitled "Northern Ojibwa Communities of the Contact-Traditional Period."

Dr. Rogers attended the American Ethnological Association Meetings held in New York in November, where a special meeting took place to discuss the Sub-Arctic Volume of the Handbook of the North American Indian to be published by the Smithsonian Institution. He attended



Dance helmet, Africa, Upper Volta, Senufo tribe.

the Northern Studies Committee Conference on Indian Education held in Thunder Bay, Ontario in February and then the Council on Anthropology and Education in Montreal in April, and joint meetings of The Society for Applied Anthropology and American Ethnological Society where he participated in a panel called "Bi-Cultural Education of Canadian Eskimos and Indians." Dr. Rogers also attended the Heritage Ontario Congress representing the Museum and also as a participant on behalf of the Provincial Government, presenting a paper entitled "Social and Cultural Areas for Government Aid—The Case for Preferential Cultural Status."

Dr. Fuchs lectured on "The Indians of Venezuela", in the series "ROM—Field Work".

Dr. Rogers gave a talk at the Indian Friendship Centre, Parry Sound, entitled "A Short History of the Indians of Georgian Bay" and one in the Museum series entitled "The Indian and the WASP: Two Views of the land."

Surveys and Research

Dr. Taylor continued his work in Northern Ontario during the past summer at Wunnimun Lake. He investigated the commercial fisheries in the community and continued to collect data on an ethnographical study of the people in the Landsdowne House-Webique area. This was the third phase of a study concerned with recent history and contemporary life in this part of Northern Ontario. A report entitled "An Assessment of Commercial Fishing Activities at Wunnimun Lake" was submitted to the Department of Natural Resources at the end of last year. The work in Northern Ontario is made possible by the Ontario Department of Natural Resources who kindly supported all aspects. In addition, Dr. Taylor has recently finished a three month study of some 1200 specimens collected from the Netsilik Eskimo on King William Island by Roald Amundsen during the "Gjoa" Expedition of 1903-05. This work was carried out under a grant from the Canada Council and the monograph, hopefully to be ready by early July, will be published by the Oslo University Museum.

Dr. Rogers undertook a six-day survey of commercial fishing among the Indians of Northwestern Ontario in November, on behalf of the Ontario Department of Natural Resources. This work was initiated by them in response to the threat of mercury poisoning in the fish and a possibility of progressively closing the various commercial fisheries in that area. A report was prepared for the Government entitled "Ojibwa Fisheries in Northwestern Ontario."

Dr. Rogers continued to serve on the Archaeological and Historic Sites Board of Ontario, became a member of the Northern Studies Committee, University of Toronto, the ROM Review Committee, the Round Lake Review Committee composed of representatives of Federal and Provincial Governments, the Better Educational Opportunities Committee of McMaster University and finally resigned from the Board of Indian Crafts of Ontario. He continued to act in the capacity of Consultant to the Ontario Department of Natural Resources.

European

H. Hickl-Szabo, Curator

The year began with the grand opening on 14 July 1971 of the special exhibition of French Ceramics. Its success was largely due to Mrs. Bacso, greatly assisted by Mme Genevieve Le Duc of the Sevres Museum; that the written part of the catalogue was as successful as the exhibition is due to Mrs. Bacso. The Display Department and the Preparators are to be congratulated for their work on the show.

Research Activities

Mrs. Bacso has done intensive research on the Louis XIV furniture acquired last year, and is preparing an article for ROTUNDA. She has also done some research on furniture in the Garfield Weston gift of 1971, and the installation of the new 19th century display has entailed much research and re-cataloguing of the 19th century ceramics. She was also responsible for the arrangement of the European section of the "Hidden Treasures" show which opened 9 May 1972.

Mr. Cselenyi has continued his research on the print collection, and is now working through the large English section. Pursuing his aim of publishing on music in Canada, he is preparing a catalogue of the R. S. Williams Collection of autographs and rare music, and a study of the R. S. Williams family. Dr. Helmut Kallman, head of the Music Department of the National Archives in Ottawa, has given him considerable help with his research. Also with a view to publication, Mr. Cselenyi has begun research on two Italian capitals recently acquired. He successfully took part in a post-graduate course in the University of Toronto Department of Fine Art, his subject being Greek Temples of the 4th Century and the

Hellenistic Period. Recently he has prepared a catalogue for an exhibition of oriental rugs which is to open in November. He arranged a print show for the third floor rotunda in September 1971 entitled "The Woodcut from Dürer to the 20th Century in the ROM Print Collection." He collaborated with Professor Millard Meiss, who was doing research on the de Giac Book of Hours in the Lee Collection, and with Dr. Gh. Derveaux of the Musées d'Art et d'Histoire in Bruxelles on the identification of wood carvings in our collection. He acted as consultant for the Kitchener-Waterloo Gallery, and prepared a loan exhibition of prints for use in a study course there.

Mr. K. C. Keeble has continued research on arms and armour, with a view to publishing parts of the collection. He has done research on small bronzes with reference to the Renaissance in general and Italy in particular. He is working on German paintings with the aim of dating them by fashion. He has done some work on German porcelain *modellemeister* and the use of porcelain as a medium for small sculpture. He has collaborated with the Conservation Department on the cleaning and restoring of guns.

Exhibitions and Lectures

Mr. Hickl-Szabo successfully negotiated the loan of a private collection of oriental rugs for a special exhibition in the autumn of 1972. He has also done the preliminary work on bringing an exhibition of miniatures from the William Rockhill Nelson Gallery of Art in Kansas City in 1973, and later an exhibition of small gilt bronzes from an English private collection. Mr. Hickl-Szabo has been accepted as an expert on the authenticity of antiques and objects of art by the Canadian Customs.

Mr. Hickl-Szabo gave three lectures to the Museology students. In February he gave a lecture at the Willistead Art Gallery in Windsor on the merits of collecting art. He gave a long interview on tv on outstanding objects in the Museum collection, with emphasis on a Byzantine ring in the Lee Collection, two Romanesque capitals, a Romanesque sculpture and an early Gothic sculpture. Mr. Keeble gave a number of well-received lectures, the most important a two-hour lecture on "Chateau, Villa and Schloss" in the Jubilee Year Lecture series. Mr. Cselenyi gave an interview in the Slovak language on the international broadcast on the subject of the Museum. He also acted as consultant for a CBC team preparing a special programme on plucked string instruments in the ROM collection. 34 lectures on the Applied Arts in Europe were given by Mr. Hickl-Szabo and Mrs. Bacso to 3rd and 4th year students in the Department of Fine Art (Course 422). During the year the Department has done a total of 405 identifications of objects for the public.

A Book of Hours (970.49) which we acquired through the most generous help of Mr. R. A. Laidlaw, has been signally noticed by two outside organizations: the Postmaster General asked permission to use one of its miniatures as the design for a stamp, and the Save the Children Fund is using one of its illustrations for a Christmas card.

Galleries

Our capitals have been newly installed in Gallery 5, greatly improving the display. A number of additions to the musical instrument collection has involved rearrangement of that area. A Victorian display has been installed



Ivory figure of a mounted knight. Germany, 16th century.

Bronze figure of a mounted knight. Scandinavian, 11th-13th century.

south of the Lee Collection, with a fine lead crystal chandelier on permanent loan from Mr. and Mrs. John McCarthy. A new installation of the rest of that area covers a period from late Regency to *art deco* (about 1930), and for its success Mrs. Bacso is largely responsible. Some of the highlights are English pottery, cameo glass of the nineties, an oak cupboard with details embellished in the manner of Gustav Klimt, French cameo glass of the *art nouveau* period, and metalwork and pottery of the *art nouveau* period in central Europe. New accessions have made changes in some of the period rooms, such as the Rita Garfield Weston Library and the Queen Anne room. In the Armour Gallery Mr. Keeble has installed new gun cases at the east end, made label changes throughout the gallery, and replaced a number of objects by pieces of higher quality.

The Department has added a new member to its staff: Mr. Ian Tilley is a technician. He was formerly on the staff of the Cooling Gallery in London, and has considerable experience in the care of interior decoration.

Gifts and Purchases

Among the accessions for the year were English and Italian furniture, the gift of Mrs. John McCarthy; 18th century English furniture, the gift of Mr. Harry Sutherland, intended for a new period room; a pair of silver tea caddies, the gift of Mrs. A. L. Martin; a

16th century walnut cupboard, the gift of Mr. R. B. F. Barr; ten pieces of 18th and early 19th century English furniture, the gift of Mr. W. Garfield Weston; paintings, porcelain and a bronze, the gift of Mr. Alexander Finschwal; two bronze sculptures and a terracotta figure of Vulcan, the gift of Mr. Ian Ross. Purchases included a miniature model of a wall fountain in porcelain, Vienna, early 18th century; two Romanesque capitals; a terracotta figure of Venus, Danish, mid 19th century, after the monument by Thorwaldsen. Through the Ontario Heritage Foundation several important objects have come to us for display, including a silver cup and cover by Paul Storr, from Mr. R. B. F. Barr; two paintings and seven bronzes of great importance from the Ian Ross Collection; a late 17th century barometer of ivory and brass by Daniel Quare, from the collection of Mr. R. G. Meech.

Far Eastern

Dr. Hsio-yen Shih, Curator

The Department's work has been a stimulating blend of continuity, in the study and presentation of our collections, and occasional highlights of special events.

Remodelling of the galleries continues. The first three, at the entrance to the Far Eastern section, have been opened, though final details have yet to be completed for the Shang Dynasty Bronze Age display. At the same time planning for three more galleries has begun. We hope that the third floor will be completely open to circulation by the end of 1972, with completion of galleries for Sung-Yüan Dynasty ceramics, Chinese furniture, and Chinese folk arts. Again, the formulation of new presentations has required the help of many departments in the Museum. Over 500 objects were recatalogued by members of this Department and duly processed by the Registration Department. The Conservation Department treated approximately 200 objects, both for aesthetic and preservation purposes. Not least the Display General Department has had to cope with a bewildering array of special requirements inflicted upon them by us.

Exhibitions

Jubilee Year was launched by the Department's exhibition of *Chinese Jades*, which opened on December 14th, 1971, with a very convivial cocktail party for Life Members of the Museum. This exhibition was designed to travel to smaller Canadian centres, the display cases themselves functioning as packing crates for the objects. It has already been seen at McMaster University in Hamilton, Laurentian University in Sudbury, Trent University in Peterborough, and Guelph University. The Department of

Northern Affairs will sponsor its journey northwards in the autumn of 1972. Miss Dohrenwend was responsible for organizing the exhibition, and was the author of both a very scholarly catalogue of the Museum's Chinese jade collection and a smaller introductory pamphlet to this subject provided *gratis* to the exhibition's viewers. We hope that this first and admittedly experimental travelling exhibition will provide the Museum with experience in arranging such small touring sections of our collections for all of Canada. The Canada Council provided a generous grant to the project, for which we are profoundly grateful.

Mrs. Stephen organized a most handsome small exhibition on "The Arts of War in Ancient China," displayed from March 28th to April 30th, 1972, as one of the Jubilee Year's special events. This was an off-shoot from her continuing supervision of a programme of technical studies on Chinese bronze weapons, undertaken with the Conservation Department and Professor Ursula M. Franklin of the University of Toronto's Department of Metallurgy and Material Science.

The Department contributed as well to the Museum's major exhibition in art and archaeology for the Jubilee Year—"Hidden Treasures." We sponsored a performance of Chinese traditional dance by Mlles Chiang Ching and Pamela Young on March 20th, 1972, as an unusual opportunity for cultural expansion in this celebratory year.

Research, Teaching and Lectures
Simultaneous with all these activities is our occupation in research. Mr. Hsü has been notably fruitful in his work on our collections of Chinese divination or oracle bones.

Teaching duties accompany our Museum duties. Miss Shih offered a graduate seminar on Chinese painting, and Mrs. Stephen two graduate courses on "Selected Topics in Chinese and Japanese Art" and "Bronze Archaeology of Eastern Asia;" all in the Department of East Asian Studies of the University of Toronto. Both Mrs. Stephen and Miss Dohrenwend contributed to the undergraduate course "Visual and Performing Arts of East Asia" of the same institution. The Department of Extension, University of Toronto, was able to give the course "Looking at Chinese Art" with the help of Mrs. Stephen, Miss Dohrenwend and Mrs. Proctor from this Department, and Mr. John Vollmer of the Museum's Textiles Department. This autumn class was so well received that it had too be repeated in the spring of 1972.

A number of special lectures was given by members of the Department. Miss Shih lectured on "Village, Town and City: China's Conception of a Balance in Nature" for the Museum's Jubilee Year series *Man in Nature*. Mrs. Stephen spoke on "Recent Archaeological Discoveries in China" at Guelph University, and on "Some Chinese Bronze Weapons in the ROM" at the American Oriental Society's annual meeting at Chapel Hill, N. Carolina. Mlles Shih and Dohrenwend both participated in the Bishop White Memorial Fund lecture series. Mrs. Proctor spoke to the University Women's Club of London, Ont., a sociology class at the University of Toronto and a class in comparative religion at York University, on various aspects of our collections. Mlles Shih and Dohrenwend, Mmes Proctor and

Irwin, also contributed to the special convocation seminar on "China: Culture and Communism" at Trinity College, University of Toronto.

Visitors and Volunteers

Our special gratitude should be extended to volunteers helping the Department in necessary but often unglamorous routine work—Mmes R. Murray Bell and Leonard Barlow for mounting photographs from the Ku Kung (National Palace Museum, Taiwan) Archives, Mrs. R. L. McFeeters for similar work on the Ku Kung slides, Mrs. A. T. L. Fraser for help with the Library, Mrs. Arnold C. Matthews for continued arrangement of our study files, and Mrs. George G. R. Harris for cataloguing of Ch'ing Dynasty ceramics under the guidance of Mrs. Proctor.

Members of the Museum's Members' Committee offered tours of our galleries throughout the year—Mmes S. O. Carter, J. Fitzpatrick, W. R. Parker, W. O. Randall, J. A. Rhind, J. F. Smith and D. G. Watson being most proficient as well as charming lecturers on many things oriental.

The Department welcomed Professor B. N. Goswamy, Chairman of the Art Department at the University of Punjab (Chandigarh, India), for a lecture on Indian painting in May of 1972.

Professor David S. Ruegg, formerly Professor of Tibetan at the University of Leyden, was a special consultant to the Department in April and May of 1972; cataloguing and studying the iconography of our Tibetan *thankhas*.

One departure from the departmental staff was particularly regretted, though we are happy that Mr. Mino can continue his studies in Chinese and Japanese art at Harvard University. More happily, his attachment to the Museum and this Department will be revived by his return to work here for two months in the summer of 1972.

Far Eastern Library

Miss Kingston reports a profitable year in acquisitions for the Library, though some financial unease in regard to our expenditures. 865 volumes of books and 73 pamphlets have been accessioned this fiscal year. In addition 134 periodicals were received through purchase or exchange. Approximately 400 titles have been catalogued. We have maintained the expansion of the last few years in Library activities with less strain on the Librarian, who now has an assistant in Mrs. Bird's competent stenographic help. A major gift to the Library was presented by Mr. and Mrs. George G. R. Harris—a reproduction of the 12th century Japanese illustrated scroll of *The Tale of Genji* (Tokyo: Kodansha, 1971). The Library also received 12 volumes on Chinese and Japanese drama, as gifts from Mr. and Mrs. Edgar J. Stone.

Gifts and Purchases

Our thanks go also to donors of objects to the collections—to Mr. Q. Chowdhury for a dagger and sheath, Pathan; Mr. Frank Crane for an underglazed blue porcelain bowl, Japan, early 18th century "Kakiemon" ware, in memory of Mrs. Marion Kent who had been a valued volunteer in this Department and died suddenly in the summer of 1971; Miss Maud O. Dowsley for a bronze statuette of Manjuśri, China, Yüan Dynasty (?); Mrs. Charles Feilding for an underglazed blue porcelain jar, China, Ch'ing Dynasty, mid-19th

century; Mr. and Mrs. George G. R. Harris for a black lacquer basin inlaid with mother-of-pearl, Korea, Yi Dynasty, 17th century, an under-glazed blue porcelain pillow, Japan made for Korean market, an *ishi-zara* dish, Japan, Edo period, 1st quarter of 19th century, a chocolate glazed bowl with grey glazed interior, Annam, 16th century, and a silver covered box, Laos, 20th century; Miss Phyllis Higinbotham for four *kiseru*, Japan, 19th century; Mrs. Edgar J. Stone for over a dozen musical instruments, Japan, 20th century; Harry MacDonald Ltd. for a pair of landscape hanging scrolls by the Japanese painter Hara Zaisho (1813-1871); and finally the Toronto Diocesan Anglican Church Women for a group of Chinese, Japanese and south-east Asian ethnographic materials.

Our holdings also increased through a number of purchases. The single most important acquisition was a bronze sculpture of Padmapāni, Srivijaya, a kingdom based in Sumatra, c. A.D. 900; made possible through the generous donations of individual benefactors, as well as the Purchase Trust Fund. We thank Mr. and Mrs. R. W. Finlayson, Mr. and Mrs. H. Gustin, Mr. and Mrs. George G. R. Harris, Mrs. Dorothy Hoover, Mr. John Kitz, Mrs. Arnold C. Matthews, Mr. P. S. Quan and family, and Mrs. Edgar J. Stone. Also acquired this year were a *negoro* lacquer ewer, Japan, Muromachi period, 16th century; a landscape hanging scroll by the Japanese literati painter Okada Beisanjin (1744-1818); nine Rajasthani miniature paintings from India; and a group of Tibetan artifacts.

Elder with *fu*. China, late Ming-early Ch'ing, 17th century.



Greek and Roman

Mrs. Neda Leipen, Curator

One of the major accomplishments of the Greek and Roman Department was the opening, on March 20, of the new installation of ancient Greek coinage. The culmination of two and half years work, the exhibit shows 560 gold, silver and bronze coins in a series of eight safety-wired cases; it also includes a large map-mural executed by Miss Sylvia Hahn of Display General, illustrating the distribution of Greek coin-minting city-states and colonies around the Mediterranean and beyond. A set of enlarged photographic prints of about two dozen of our best specimens, beautifully taken by the Museum Chief Photographer Leighton Warren, completes the exhibit. In order to achieve easy eye-level viewing the well-lit display was mounted vertically. After a great deal of searching and experimentation, particularly on the part of Miss Alison Harle, Assistant Curator, this has been effected in what we believe is the safest possible way from the point of view of conservation of metal. In a small informal ceremony on the day of the opening a presentation was made to Dr. J. S. Wilkinson, Research Associate in the Department, in recognition of his generously donated time and expertise in revising the cataloguing of the entire collection (1600 pieces) and preparing the material, including the labelling, for the new display. The event was widely noted in local and provincial press, and the new permanent display "believed to be the finest on public view in North

America," as described by the *Canadian Numismatic Journal* (June 1972), was particularly welcomed by coin collectors and connoisseurs.

Exhibits—Renovation and Cataloguing

Dr. Wilkinson continued his association with the Museum and, in collaboration with Miss Harle, the Department's holdings of Roman Imperial coinage were surveyed and prepared for further work of cataloguing and addition to present numismatic displays. Greek and Roman coins on display in the European and West Asian Departments' galleries were recatalogued.

Throughout the year a number of exhibits in the galleries were renovated, the physical renovation preceded in each case by a study and recataloguing of the material. In the Roman Daily Life gallery the cases with pottery were rearranged and refurbished with new backgrounds; with the large display of Roman glass in the same gallery, redone last year by Dr. John Hayes, Assistant Curator, and with other exhibits of Roman daily life, the gallery has gained considerably in freshness and interest.

In the Romano-British collection a new display illustrating the Roman army in Britain and Roman-British civil architecture was arranged by Miss Harle and added to her previous displays of pottery and objects of daily life. She began preparation of a booklet on Roman Britain based on the ROM holdings.

The display illustrating Greek bronze-casting technique was brought up to date, and work started on

improving the gallery of Greek red-figure and later pottery. The Etruscan collection was rearranged by Dr. Hayes and parts of the material were prepared for publication in an article.

Teaching, Travel and Lectures

During an extended leave from the Museum (July to December 1971) Dr. Hayes worked on a number of excavation sites, where he catalogued and prepared for publication the ceramic finds. In addition to the site of St. Polyeuktos in Istanbul (excavation sponsored by the Dumbarton Oaks), where he has worked for a number of seasons, he also contributed his expertise to the excavations at Paphos in Cyprus, at Tocra in Libya, and at Knossos. His comprehensive volume *Late Roman Pottery* (British School at Rome, London 1972) appeared in the Spring of 1972. During his stay in England he held a seminar on Roman pottery at the Institute of Archaeology in London. At the University of Western Ontario he gave a talk on Hellenistic pottery and metalwork.

Mrs. Leipen again spent about three weeks on the site of the ancient Agora in Athens where she has been engaged in work on the small Greek and Roman bronzes from the site toward a volume in the series of the American School of Classical Studies Agora Excavation Reports. In connection with this work she visited

the museums in Frankfurt, Mainz, Bonn and Cologne where she studies the related material from the Roman frontier (*limes*) along the Rhine. She also visited the large collections of Cypriot material in the Historical Museum in Stockholm excavated during many seasons by the Swedish Cyprus Expedition: much of this material, arranged by the hundreds of tomb groups, finds close parallels among our remarkably rich Cypriot holdings. In the fall of 1971 an international Cypriot symposium was held at Brock University in St. Catharines entitled *Cyprus: Work in Progress—Studies and Excavations*. Included in the programme of the Symposium was a visit by the delegates to the ROM's Cypriot and other archaeological collections. A reception in their honour, hosted by the Greek and Roman Department, was held at the Museum. The guest of honour was Professor Vassos Karageorghis, Director of the Department of Antiquities, Cyprus, who spent a few days studying the Cypriot collection.

As in previous years Mrs. Leipen taught a course on Greek terracottas to a University of Toronto Fine Art

class. She lectured, by invitation, at University of Western Ontario on "Athena Parthenos: Trying to reconstruct a vanished statue." She also gave an illustrated talk on "The Dance in Ancient Greece" to the ROM Youth Club which she repeated for the staff of the Museum Education Department and guests.

In the Museum Diamond Jubilee Curatorial lecture series Mrs. Leipen spoke on "The Greeks and the Sea: The Shaping of a Culture." As with most of the lectures in the series, "The Greeks and the Sea" was attended to the full capacity of the Planetarium Lecture Room with the overflow audience turned away.

For the Jubilee Exhibition "Hidden Treasures" the Department contributed over 80 objects which were very effectively set up by Display General. About one half of these were limestone and terracotta statuettes from Cyprus representing a cross-section of periods and styles from archaic to late Hellenistic. For a contrast in category and texture dainty Greek and Roman toilet and cosmetic

articles and jewellery in a variety of materials were included, as were also some monuments of Roman funerary art, pottery and terracottas.

Study and Research

Throughout the year, the collections served as a source of study and research to a number of outside scholars in various fields. A University College team, headed by Professor Alan Samuel, continued their work on Greek ostraka from Egypt, much aided in their task by Miss Harle. The results of their study of the preceding few years appeared in A. E. Samuel, W. K. Hastings, A. K. Bowman, R. S. Bagnall, *Death and Taxes, Ostraka in the Royal Ontario Museum I*, Toronto 1971 (American Studies in Papyrology x). A second volume of this work is in progress.

Dr. Edith Wightman of the Department of History at McMaster University, a specialist in pre-Roman European history, studied the collection of Celtic coinage in order that these excellently preserved and generally rare coins may be published.

Under the Curator's guidance and supervision, Miss Carole Prosavick (now Mrs. Hector Williams) successfully finished the study and cataloguing of the large collection of Graeco-Egyptian terracottas. The sizable thesis was part of the requirements for Carole's Master of Museology Degree in the University of Toronto. Mrs. Williams has since enrolled in a PhD programme at the University of British Columbia.



New installation of Greek coinage, opened March 20 1972.

Philately

Douglas Patrick,
Honorary Curator

Supervised by Miss Harle a young summer worker, Mr. Lloyd Bregman, worked on sorting out and classifying a large group of late Roman bronze coinage, possibly part of a larger hoard already published (F. H. Armstrong in *The Phoenix* 19, 1965, pp.51-60).

The Department had additional occasional assistance in the person of Miss Cathie Twiss, a student of Classics at Queen's University. She very ably looked after the growing departmental collection of slides, mounting and labelling them, and setting up a cross-index. She also helped Mrs. McCormick, the Departmental Secretary, in the great load of work which rather than strictly secretarial is often of a technical nature (mounting and labelling of photographs, etc.).

Our particular thanks go to Mrs. McCormick for the perfect, and perfectionist, job she did of typing the long descriptive labels accompanying the new Greek coinage exhibit. Her absence, through illness, at the end of the year, was sorely felt.

We gratefully acknowledge the help of Mrs. D. Shaw of the Members' Committee who kept the files of re-prints, pamphlets, dealers' catalogues, etc. up to date.

Gifts and Purchases

The collections increased by gifts and purchases. We express our thanks to the following generous donors: Mrs. Arthur Cole of Toronto for an Anglo-Saxon cinerary urn and a number of pottery sherds from Britain; to Miss Irene Corkery of Peterborough for a Roman terracotta lamp; to Dr. W. Otto of Toronto for a Roman terracotta statuette from Egypt; to Mrs. W. C. Van Horne of Montreal for 22 pieces of ancient glass and two pieces of pottery; to Mr. A. Pollard of Victoria, B.C., for three Greek South-Italian vases; to Messrs J. S. Wilkinson of Toronto and W. D. Holditch of Sudbury for assorted Greek and Roman coins.

Among the purchases of special interest was an early Attic black-figure amphora and a small red-figure oinochoe with a lively representation of a comic actor.

The Department identified numerous objects brought in by the public. As usual, most of these were ancient coins.

Each year it seems a little more difficult to surpass the stamp exhibits of previous years, but the Museum visitor will agree that the high quality never flags. Mr. Patrick's regular Globe and Mail columns, often dealing with ROM-displayed material, are also of great interest to the public. And the Museum's collection continues to grow.

A gift of postage stamps of Canada and the Provinces has been cleared through the Heritage Foundation, and is now in security at the ROM. Mr. D. B. Strudley recently gave a second collection that he formed. It includes mint postage stamps of Great Britain with most examples from the one-penny black and two-penny blue of 1840 to issues of 1969, and such rarities as the five-pound stamp of 1867, and the one-pound stamp (unused with gum). Many of the earlier stamps come with expert committee slips to prove that they were examined by specialists and declared genuine.

These stamps will be displayed as Mr. Strudley arranged them without alterations of any kind, when clearance has been obtained from the Heritage Foundation. Other important gifts are pending.

Collectors continue to cooperate by lending their possessions for display in the Lower Rotunda. Mr. Vincent Greene, one of the top five great Canadian philatelists had on display (1 July to 14 August) a portion of his rare covers (envelopes with stamps) showing early postal markings and cancels, mainly 1859 to 1870 issues of Canada. This was a real stamp collector's exhibit. Of great interest to the public and collectors was the modern display by Abitibi Paper Company showing how paper was made for the new Canadian stamps.

Textiles

H. B. Burnham, Curator

For the Textile Department, the outstanding event of the past year was the special exhibition "*Keep Me Warm One Night*" planned and arranged by Mr. and Mrs. Burnham. This displayed for the first time the Museum's unrivalled collection of textiles handwoven before 1900 in Ontario, Quebec, and the Maritime Provinces. It was the culmination of the Department's major research over the past 25 years, a project initiated in 1947 by Dorothy K. Macdonald (now Burnham), the first Head of the Textile Department. The coverlets, blankets, linens, costume and carpeting shown were supplemented by looms, spinning wheels and other pieces of equipment from the same areas. Like all major exhibitions, it involved not only the whole staff of the Textile Department, but also some 25 other members of the Museum staff. Tours of the exhibition were given daily by members of the Members' Committee, and their efforts contributed to its great success. It was planned that a full report of the research and the collection would be published to coincide with the opening. There were unavoidable delays, but "*Keep Me Warm One Night*": *Early Handweaving in Eastern Canada* is now in the hands of the University of Toronto Press, and its publication is anticipated early this coming autumn.

Exhibitions and Publications

The policy of regular changes of exhibition every two months in the Textile Gallery, instituted in 1970, was continued. As only about 1% of the rich collections may be displayed at any one time, this makes it possible to

throw a spotlight on specific aspects in turn. Due to construction to obtain desperately needed storage space during the summer of 1971, no display could be mounted, but for September and October, Mr. Burnham arranged a display of coverlets, blankets, and linens from Europe and the United States that were related to the material in the Canadian exhibition.

As described in ROTUNDA (Spring, 1972), Mrs. Nora Priverts, the former Departmental Secretary, has devoted her retirement to assembling a representative collection of Latvian textiles and costumes to ensure the preservation of these important aspects of the cultural traditions of that country. The response she received was overwhelming, and *A Hundred Mittens*, a special exhibition of this new and important collection, was arranged by Mr. Burnham for November and December. On November 17, the eve of the anniversary of Latvian independence in 1918, a reception was held in the Textile Gallery for the donors who had so generously parted with these links with their homeland.

In January and February, 1972, *Harvest '71* involved all members of the Department. It was devoted to a selection of the almost 1,400 items accessioned during the previous year. Costume, embroidery and woven materials were included from England, France, Hungary, the Greek Islands, Turkey, China, Afghanistan, Guatemala and Chile. Simultaneously, recent additions to the Canadian collection were shown in the Ontario Gallery, and other new accessions were displayed in the Costume Gallery.

In March and April, Mrs. Brett arranged an exhibition of English domestic embroideries to coincide with the publication of the catalogue she had prepared of the ROM collection. The items shown ranged in date from the 16th to the end of the 18th centuries, and are described and illustrated in the catalogue. In anticipation of the exhibition and the publication of *English Embroideries*, Mrs. Brett gave a lecture at the University Women's Club on the subject.

May and June gave an opportunity for the exhibition planned for the previous summer that had been postponed because of construction. *La Soierie Française*, arranged by Mr. Burnham assisted by Mrs. Burnham, showed costume and rich silks for which France is famous. Most were woven in Lyon, a city that has been the silk-weaving centre of the world since the late 17th century. The objects shown ranged from this date to the 1960s. A number of them were on display for the first time.

The Textile Department had its share in "Hidden Treasures," the special exhibition to celebrate the Museum's 60th anniversary. All pieces chosen had not been on display for the past ten years, or had never been exhibited, either because of limited exhibition space or because of their size.

In honour of the visit of a delegation from the National Assembly of Romania headed by the President, Dr.

Gervers arranged a special exhibition chosen from our very rich Romanian collection. This was mounted in the gallery normally reserved for Japanese textiles. Dr. Gervers' efforts were appreciated by the members of the official party who were surprised at the range and quality of the collection the ROM has in this special field.

Honours, Travels and Lectures

In the summer of 1971, Mr. Burnham was nominated as the Canadian member of the Costume and Textile Committee of ICOM (International Council of Museums) and, in 1972, was elected a Fellow of IIC (The International Institute for the Conservation of Historic and Artistic Works). He was unable to attend the meetings of the ICOM committee in Paris in the summer of 1971, but was elected a member of the sub-committee charged with establishing terminology for cataloguing purposes that could be used internationally, and adapted for use with computers. In September of the same year, assisted by a travel grant from the Canada Council, he attended the biennial meetings of Centre International d'Etude des Textiles Anciens in Lyon where he presented two papers, "Some Additional Notes of the Warp-faced Compound Tabby Silks of the Han Dynasty," and "Bolton 'Quilts' or 'Caddows': A Nineteenth Century Cottage Industry." Following this, he participated in the working week on textile conservation held at Abegg Stiftung, Riggisberg, Switzerland, under the auspices of ICOM. He was one of two specialists from North America invited, and presented a

paper on "The Cleaning of Eighteenth Century Chintz Palampores and Similar Material."

In May, 1972, Mr. Burnham attended an important auction sale of costume in London, and was able to acquire a number of items of value to the collection. He consulted with Scandinavian colleagues in Oslo on problems raised by the German version of the international textile vocabularies being prepared under the auspices of CIETA, and solutions to these were found. Later in the month, he lectured in New Brunswick on Canadian textiles at the New Brunswick Museum, Saint John, and to the York-Sunbury Historical Society, Fredericton. He also held a seminar on the same subject at King's Village Pioneer Settlement at Prince William.

In October, 1971, Mrs. Brett went to London, and purchased a number of items for the collections at an auction sale of costume. While there, she saw the special exhibition of 20th century costume collected by Mr. Cecil Beaton for the Victoria and Albert Museum, and attended a reception given by the English Costume Society in Mr. Beaton's honour. She also took advantage of the opportunity to visit the costume collections in the London Museum, and the Assembly Rooms in Bath.

Towards the end of March, 1972, Mrs. Brett participated in the meetings of the English Costume Society at The Hague, and had opportunities to examine storage collections, as well as the special display put on for the occasion. Following the meetings, she represented Mr. Burnham at the sub-committee meetings of the ICOM Costume and Textile Committee on standardization of terminology.

Mrs. Brett has been responsible for the regular rotation of costume in the Costume Gallery, a popular display area presently being improved by the building of a large new display case. As with all textile material this rotation is a necessary precaution to ensure preservation for the future. She has done considerable research on the ROM's 18th century woodblock-printed cottons, and this has revealed an unexpectedly large number of technical variations enhancing the importance of this outstanding collection. She has twice visited New York to study a private collection of 18th century mordant-painted and resist-dyed cottons (Indian chintz) that she plans to publish.

Thanks to a Research Grant from the Canada Council in July, 1971, Dr. Gervers was able to spend the summer pursuing intensive research on two projects. The award enabled her to study related material in collections in England, France, Turkey, Hungary and New York. The first of these projects dealt with the historical background and development of the Hungarian coat-mantle (*cifraszür*), and is based on examples in the ROM collection. The manuscript for an Occasional Paper has been completed, and is now in the hands of the Editorial Committee. The other project is a study of 17th century ceramic tiles made in Istanbul about which little is known. It is based on documented examples that Dr. Gervers excavated in Sárospatak in 1964-5. Work proceeds on the completion of an Occasional Paper that should be completed during the coming year. Dr. Gervers' main research remains centred on our Romanian collections.



English Crewelwork Curtain, 18th century, 2nd quarter. Gift of Mrs. Edgar J. Stone.

Having been the first Head of the Textile Department, Mrs. Burnham's knowledge and experience have proved an invaluable asset to the Department, and have greatly contributed to the success of almost all the changing exhibitions that have been put on. During the year, she completed her study of the knitted socks of the Romano-Egyptian Coptic period, and the results will be published later this year. She has already commenced the basic research necessary for the special exhibition, "*Cutt My Cote*", scheduled for the summer of 1973.

The usual series of lectures have been given by members of the curatorial staff to students from the University of Toronto, Ryerson Polytechnical Institute, and Seneca College. Mr. Burnham, Mrs. Brett, Dr. Gervers, Mr. Vollmer, and Mrs. Holford have all been involved in these programmes.

Mr. Vollmer has been responsible for the rotation of displays in the various parts of the Far Eastern Galleries where Chinese, Japanese, Indian, and Central Asian material is shown. During the year, he has prepared the text for the Japanese section of the catalogue, other than that on paintings, that will accompany the major special exhibition of Chinese and Japanese art planned for the end of 1972. As the Japanese material for the exhibition will come from the collections of the Art Gallery of Greater Victoria, Mr. Vollmer visited there to make the selection, supervise the photography, and study the pieces chosen. During the year he completed the requirements for a Master of Arts degree with the School of East Asian Studies of the University of Toronto, and was granted the degree towards the end of the year.

Credit is due to both Mrs. Zuppinger and Mrs. Cselenyi for their contributions in preparing delicate and often fragile material for display, and to ensure its preservation for the future. The addition of a specialist in textiles to the Conservation Department should prove of inestimable value to the Textile Department, once a solution to the space problem for conservation work is solved. The essential cleaning of materials in the textile collections has been dormant for over six years, and the backlog of objects requiring attention is staggering. Mrs. Zuppinger, assisted by Mrs. Cselenyi, has undertaken the necessary task of numbering the flood of material that has been accessioned during the year before it is handed over to members of the curatorial staff for research and cataloguing.

Mrs. Lewis joined the Department as Departmental Secretary at the beginning of the year, and has ably filled the gap left by the retirement of Mrs. Priverts. She has cheerfully dealt with the correspondence, the typing of

manuscripts, and the hundreds of labels needed for the constantly changing displays. Her previous experience with the Canadiana Department has been a decided asset.

Gifts and Purchases

The collections continued their healthy growth, and over a thousand items were accessioned. By far the greater part was received as gifts, but purchases helped to fill a number of gaps. Among the latter were additions to the 18th century French and English silks, English, French, Hungarian, Greek Island, Turkish, and Indian embroideries, pre-Columbian Peruvian textiles, and material from Guatemala and Afghanistan. Outstanding among these were the orphries for a chasuble of about 1425, the earliest example of English embroidery in the collection (ROTUNDA, Spring, 1972), three examples of Indian silk chain-stitch embroidery of the 18th century (ROTUNDA, Winter, 1972), and a superb English court dress of about 1775 of striking yellow damask.

Among the gifts, the important Latvian collection has already been mentioned, and the members of the Estonian community in Toronto are now gathering a collection to ensure the preservation of their cultural traditions. Mrs. G. R. Harris has donated both Japanese and Southeast Asian material that strengthens these aspects of the collections. A gift of Chinese material from Mrs. William C. White included a number of items used by Bishop White when he first served in China in the 1890s.

Two splendid English crewelwork curtains, one of the early 18th century, and the other of the second quarter of the century, were given by Mrs. Edgar J. Stone. A large gift from Mrs. William C. Van Horne contained a number of items of importance, including a particularly fine bedspread of 17th century Bengali embroidery (ROTUNDA, Summer, 1972).

The collection of 18th century costume was enriched by the gift by the Members' Committee of the Museum of a man's coral-red suit lined with ermine of about 1770 (ROTUNDA Spring, 1972), and by a dress of about 1775 of blue and white striped satin, and another of about the same date of embroidered Indian muslin, both gifts of the Fashion Group, Inc.

Donations to the collections of 19th and 20th century costume included a beautiful chenille-embroidered opera cape of the 1860s given by Miss Nancy Spiers, a collection of hats of the 1920s and 1930s by Mr. Edward Phelps, and generous gifts of various garments by Mrs. Saul A. Silverman, Miss P. Waldie, Mrs. C. M. McEwen, and the Luther Holton family.

West Asian

T. Cuyler Young, Jr.,
Curator

Once again the West Asian Department had a busy and we think productive year. Much of our activity has been, as always, of a routine nature and probably not suitable copy for an annual report. Yet it is often difficult to sort out the routine from the noteworthy. As the collections, the public commitments and the academic involvement of the department increase, yesterday's unique event can become today's routine.

On July 1, 1971 we welcomed Dr. Edward Keall to the curatorial staff of the department. His training and interests are primarily in the Parthian, Sassanian and early Islamic periods, and his addition to the staff means that the museum can now deal competently with some thousand years of Near Eastern history and archaeology which heretofore we have had to pretend did not exist. Dr. Maxine Kleindienst also joined us this year as a Research Associate. She will act as consultant on, and cataloguer of, the museum's Palaeolithic collection, for some time now the responsibility of the West Asian Department.

Accessions

The collections too have grown. Several purchases in the Islamic field, primarily of manuscripts and metal work, were made. One of the most important is a very fine inlaid bronze inkwell of the 12th century A.D. (972.10). Financial support of the

British excavations at the site of Ghubayra in Iran brought the museum a useful teaching and display collection of Islamic materials, primarily of the Seljuk period. Similar arrangements with the excavators of Tell Taya, a pre-Islamic site in Iraq, have yielded a significant documented collection of objects from the third and second millennia B.C. A small grant to Professor J. H. Holladay, a Research Associate of the department who spent last year in Israel, permitted us to acquire a documented representative corpus of pre-Islamic Palestinian sherds. Finally, the continuation of our own excavations at Godin Tepe, and the beginning of excavations by the ROM at Seh Gabi, both in Iran, produced a veritable flood of material for the collections.

The Galleries

Gallery work has included continued planning (with the Egyptian Department) for the Near Eastern Prehistory Gallery, preliminary planning and budgeting for a reinstallation of the Palestine Gallery, the preparation of new graphic supplements for the Islamic Gallery, the organization, design and installation of a display at this year's Israel Pavilion, and, of course, a contribution to the Diamond Jubilee Show, "Hidden Treasures." One suspects that some of the time and creative energy that in a normal year would go into gallery work has this year, perforce, been given to the preparations for the department's impending move to new quarters in the Canadian Building.

Excavations and Research

The fiscal year opened with three curators in the field. Drs. Young and Levine were once again in Iran on the

Godin Project directing the excavations at Seh Gabi and Godin Tepe. They were joined there by Mr. Peter Mitchell, one of our Technicians and by Mr. Claus Breede, then of the Office of the Chief Archaeologist. The excavations lasted from May 28 to September 25, 1971. Dr. Keall in the meantime was braving the sands and heat of Libya as Assistant Director of the University of Michigan Expedition to Cyrene.

The current research work of the department involves a considerable range of activity. Dr. Golombek is working on a study of later Islamic metalwork, research which has grown out of recent additions by purchase to the Islamic collection. Her architectural studies continue with emphasis on decoration in the Mongol and Timurid periods and on the origins of the Shiite shrine complexes in Iran. Dr. Keall is involved in the preparation of a major publication reporting the result of excavations in the Parthian levels of the great site of Nippur in Iraq. Dr. Levine, besides struggling with the preparation of a detailed report on the first season of work at Seh Gabi Tepe, has been doing research on the economic aspects of neo-Assyrian imperialism. Dr. Young has also been working on the "Second Progress Report" on the excavations at Godin Tepe.



Inkwell pot, bronze inlaid with silver and copper, Persia 12th century.

Teaching, Travel and Lectures

As do other departments, we increasingly find much to do within the museum but outside the strict limits of the West Asian Department. Dr. Keall has conducted regular Tuesday night classes and laboratory sessions on the Parthians for the High School Club. Dr. Young has once again served on the Director's Advisory Committee, on the Space Committee, on the Library Committee and on the museum Editorial Board. He also participated in the Ecology Seminar organized for the Museology students.

Members of the department gave several public lectures inside and outside the museum. Dr. Golombek lectured on the "Anatomy of a Persian Mosque—the Masjid-i Shah of Isfahan," at the Canadian Conference on Iranian Civilization and Culture, held in honour of the 2500-year celebrations of the Iranian monarchy. Dr. Keall spoke at the same conference on "Archaeology and the Fire-Temple," and lectured to the Toronto Chapter of the Zoroastrian Society of Ontario on the topic "Reflections on the Fire-Temple." Dr. Levine gave a public lecture in Tehran at the Archaeological Service of Iran on this season's work at Seh Gabi, spoke on "The Iran Project" in the ROM Fieldwork Lecture Series, lectured in the museum's Digging into the Past Series on "The Medes and Assyria," spoke to the Hadassah Chapter, Wilmington, Delaware on the subject "An Archaeologist looks at the Bible," and gave a paper on "Assyria and Iran" to the Canadian Conference on Iranian Civilization and Culture. Dr.

Young also lectured in Tehran on the ROM's archaeological work in Iran, and gave lectures on basically the same subject in the Digging Into the Past Series, to the Toronto chapter of the Archaeological Institute of America, and the North York University Women's Club. He also lectured on the subject "Pollution Begins in Prehistory" in the Art and Archaeology Diamond Jubilee lecture series, spoke to students at the Bloor Street Collegiate Institute on the film and book *Chariots of the Gods*, and participated several times as a panelist on the CBC Television Programme, "What On Earth."

Dr. Golombek, attending the meetings of the Mid-west branch of the American Oriental Society, read a paper on a "Preliminary Survey of the Khvaf Region." Both Dr. Young and Dr. Levine attended the meetings of the American Oriental Society at Chapel Hill, North Carolina, at which they read papers on the ROM's archaeological work in Iran. Dr. Young gave a paper by invitation titled "Problems in the Use of Computers in Near Eastern Archaeology" to a three-day conference on the Use of Computers in Archaeology at Waterloo Lutheran University.

Formal university teaching continues to be an important part of the department's broader educative role. Drs. Golombek and Keall taught an undergraduate course in Islamic art at

the University of Toronto. Dr. Levine taught part of one undergraduate course and half of two graduate courses in Near Eastern archaeology at the University of Toronto. He also taught one full undergraduate course in the University's Department of Extension. Dr. Young taught part of two undergraduate courses and part of a graduate course in the Near Eastern Studies department of the University of Toronto. He also served on the Committee on Admissions and Standards for that department. During the academic year some four graduate students from the University of Toronto, and one from the Institute of Archaeology, London, have worked on and with the collections.

Dr. Levine remains very active in the community as a whole in ways closely related to his museum affiliation. Besides serving once again as the representative of the ROM and the University of Toronto on the Board of Trustees of the American Institute of Iranian Studies and acting as Editor for the Canadian Society for Archaeology Abroad, he led monthly adult educational study groups for Beth Tzedec Synagogue, is a Member of the Board of the Association for Jewish Studies and a Member of the Board and Chairman of the Academic Review Committee of the Canadian Foundation for Jewish Culture. Dr. Young continued to serve as Secretary-Treasurer of the Canadian Society for Archaeology Abroad.

Distinguished Visitors

Several distinguished visitors passed through the department this year. We were pleased to welcome Dr. Israel

Eph^Cal of Tel Aviv University, Dr. Tamar Noy of the Israel Museum, Mr. Peter Parr of the Institute of Archaeology, London, M. Jean-Claude Gardin, Director of Research, the CNRS, Paris and Dr. Carol Hamlin of Queen's College New York. Some twenty of our professional friends and associates visited Toronto and the museum for two days in May when the department hosted the annual meetings of an informal group of Near Eastern archaeologists who call themselves "The East Coast Archaeological Marching and Chowder Society." A profitable time was had by all, and we like to think that some of our colleagues left with rather a different picture of Toronto and the ROM than the one they brought with them.

It seems that each year more and more people with widely divergent levels of interest, ranging all the way from scholars to children off the street, become aware of and use the facilities and collections of the West Asian Department. Thus it is that more and more of our time and energy goes into encouraging and answering that interest. We certainly hope that this is one phenomenon which is not unique, but which will continue and will increasingly shape the routine of the department.

McLaughlin Planetarium

Dr. H.C. King, Curator

The McLaughlin Planetarium had another busy and most interesting year. The facilities serving the Star Theatre again received considerable attention. Significant in that area was the completion of an enlarged system for the control of supplementary optical projections, designed by Mr. F. Jessop and assembled in the Planetarium workshop. Its reliability and versatility enabled the staff to plan and present more complex and polished public shows than was hitherto possible. Even so, the system is now being used to maximum capacity and further changes will be inevitable.

The precise nature of these changes will depend to a large extent on the success or otherwise of future taped or pre-recorded shows. To date, the Planetarium has produced only one show of this kind, "The Christmas Star." This had a good reception by public and press alike, but the close-knit theme with its Biblical background and the desirability of having special music, attractive visuals and a dialogue form of commentary, virtually dictated a high order of automation.

Many major planetariums now use taped narrations and automatic controls, but not always with unqualified success. While there is no doubt whatever that automated planetarium shows offer advantages and are here to stay, it would be foolish to launch into this area without first having the appropriate back-up facilities and staff capable of using and exploiting those facilities to the fullest possible extent. In view of this, Mr. R. Ballantyne organized a thorough acoustical testing of the Star Theatre

and the design of a sound-recording room, to be built on the third floor, adjoining the Control Room. Mr. Jessop is constructing an automatic dimmer system for a spectacular sunset. Both persons attended a showing at the Gates Planetarium, Denver, Colorado, of a syndicated planetarium production by Omnitheatre Ltd., primarily to study programming techniques. All staff have been encouraged to visit planetariums which stage automated shows and to report and discuss their findings.

Public Shows

In addition to "The Christmas Star" the Planetarium offered four different public shows. "Neighbouring Worlds," planned by Mr. N. Green, outlined high-lights in modern knowledge of Mercury, Venus, Mars and the moon. Visitors were taken in imagination to Mercury. Since the show was given several months before the launching of Mariner 9, visitors to the Star Theatre had a striking 'preview' of a remarkable unmanned space mission. Yet another insight into the future was space-laboratory Skylab moving near the Earth, a project scheduled for launching in the spring of 1973. In complete contrast was "Omens of Disaster" devised by Dr. T. Clarke. This reproduced various astronomical events which once aroused widespread feelings of awe and fear. Dr. Clarke used the Zeiss sky with a great effect as a stage, the actors taking the form of a totally-eclipsed sun, large naked-eye comet, close groupings of the planets, vivid aurorae, a supernova, and, most arresting of all, the Tunguska meteorite. Recorded voices and well-integrated sound and visual effects controlled by tape made possible a series of highly dramatic sequences.

In "Above Mount Olympos," produced by Mr. Green, the Zeiss sky again played an important role. Here emphasis was on early Greek use of the stars as indicators of the passage of the seasons and pegs on which to hang the classical constellation figures. Greek achievements in the application of geometry to the sky were mentioned briefly at the end. "Stars for All Seasons," prepared by Mr. H. Creighton, compared and contrasted the appearance of the night sky at the equinoxes and solstices. It formed not only a valuable introduction to star identification but made clear the important difference between an astronomical season and a season in a biological-meteorological sense.

Attendance

During calendar year 1971, the total number of visitors to the Star Theatre alone was about 227,000. Of this number, the general public accounted for 138,400. Improved advertising and the preparation and distribution of printed leaflets which outlined the nature and content of each show were partly responsible for maintaining public interest. Even so, the attendance pattern closely followed that of the previous year. After the high level during the period mid-June to late-August came a steep decline in September. Once again, figures rose markedly in October and then fell steadily until the end of December. In 1972, as in the previous year, the highest peak was reached during the

Easter period. There is no doubt that popular events elsewhere in the city and even special activities in the Museum itself tend to act adversely on Planetarium attendance.

The Planetarium received early in May the first one-millionth visitor to the Star Theatre. The distinction went to Mrs. Jocelyn Tonks who kindly returned to attend a small ceremony during which she received a gift of books and a star globe.

Science Education

That the Planetarium continues to play a vital role in the science education of the young is demonstrated by the support of local School Boards.

During calendar year 1971, 88,600 school children in organized parties attended educational sessions in the Star Theatre. Much of the success of the school programme is due to Mr. H. Creighton. He co-ordinated the production of the school show "Look to the Sky" and prepared an extensive teachers' guide and a questionnaire. In addition, he gave 24 different demonstrations in the Star Theatre for students of grades 11, 12 and 13. They accounted for a student attendance of about 7,000. Advance bookings from schools now extend well into 1973 and Mr. Green is currently working on the next school show.

On October 25, 1971 the Planetarium held its first 'Open House,' organized by Mr. Green and Mr. Creighton in collaboration with Information Services. Almost 1,500 people visited the Planetarium in four hours, many to look through telescopes mounted in the forecourt by the Toronto Centre of the Royal Astronomical Society, see

the Optical Workshop in operation and attend one of the film showings in the Lecture Room. Nearly everyone attended one of the six half-hour Zeiss demonstrations in the Star Theatre. Another well-attended function was a programme of Zeiss sky-demonstrations held for Museum Members on 5 June 1972. Mr. Green and the Curator, Dr. H.C. King each conducted two sessions for a total of 1,047 visitors. Museum Members also gave good support to a "Members Preview" of "Omens of Disaster," the first event of its kind since that prior to the public opening of the Planetarium in November 1968.

Conferences, Research and Lectures

Since his last report, the Curator has visited the Centennial Planetarium, Calgary, the MacMillan Planetarium, Vancouver, and the Dominion Astrophysical Observatory, Victoria. In August 1971 he attended the 13th International Congress for the History of Science at Moscow University and then the Kepler Symposium at the Zeiss Planetarium, Leningrad, U.S.S.R. At Moscow he had a long discussion with Dr. S. Padohin, Director of the Planetarium. This solved a number of problems, among them the explanation of an annual planetarium attendance figure at Moscow of well over one million. Contributory factors are: the population of the city is well over 7 million; only about 50% of the total attendance applies to the Star Theatre—the remainder is accounted for by student courses in astronomy held in two large lecture rooms; courses and Star Theatre demonstrations for students are obligatory and financed *in toto* by the State; the average daily number of live shows in the Star Theatre is about

eight; the total number of lecturers involved is 20; young people are given every encouragement to take a keen interest in Soviet achievements in space-hardware and space-travel, an interest which the Moscow Planetarium does everything possible to promote. The Curator also visited Pulkovo Observatory and the Planetarium, Athens, Greece. For the Eugenides Foundation of Athens he gave an open lecture, attended by about 500 people, on "Theories of the Milky Way."

The Curator has continued his research in the history of planetary machines and astronomical clocks and been greatly assisted by a grant from the Department of University Affairs. Thanks to the grant he obtained a large amount of photostat and microfilm material, also photographs of many instruments and machines preserved in lesser known European museums. In his bibliographical work he was assisted by Mr. J. Millburn in England, a specialist in orreries, and has completed about one-third (100,000 words) of the rough draft of his proposed book, "Geared to the Stars." In Denmark he examined two Copernican planetary machines at Frederiksborg Castle and arranged for the photography of two instruments by Olaf Romer at Rosenborg Castle. The 'discovery' of one of the Romer instruments, an eclipsareon made c. 1682 by Thuret of Paris and completely overlooked by historians of astronomy, was a direct result of his biographic researches. While in Leningrad he was invited to inspect early geared planetary devices in the Lomonosov and Hermitage Museums

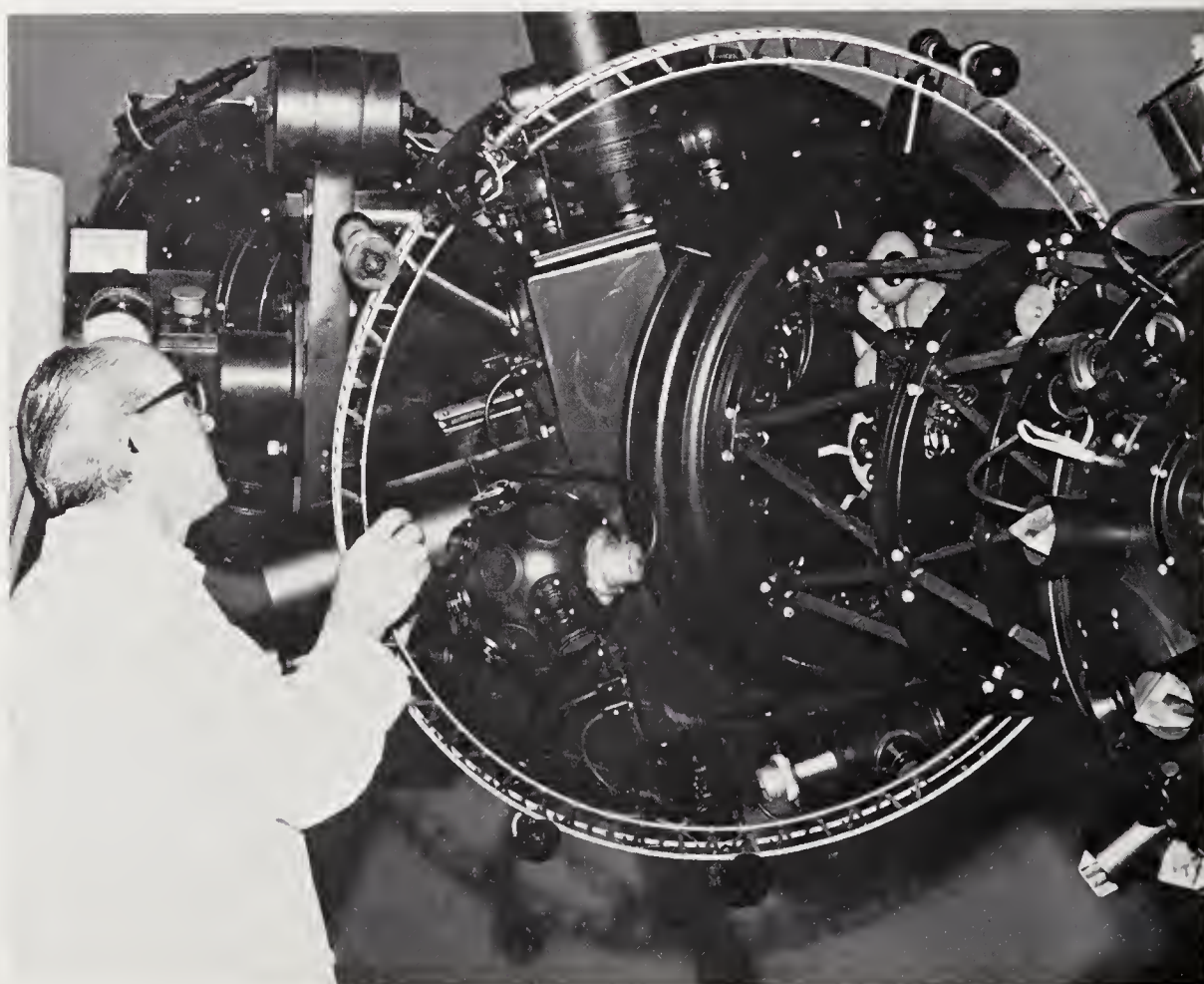
and has since been able to identify at least three of them. In May he made a detailed study of all the orreries in the Science Museum, London, England and arranged for the further photography of two unique specimens. He also spent a week on bibliographical research in the libraries of the Science Museum and Royal Astronomical Society. In January he became a member of the Antiquarian Horological Society.

As in previous years the Curator has assisted and examined graduate students in the Institution of the History and Philosophy of Science and Technology of the University of Toronto. In the Continuing Education Programme in Extension he gave 30 lectures spread over two evening courses on astronomy and the history of cosmology. For 50 teachers-in-training he arranged a Zeiss Sky demonstration and gave an address on the aims and objects of the Planetarium. As guest speaker at a meeting of the Toronto Centre of the Royal Astronomical Society of Canada he took as his subject "Geared to the Stars."

Dr. Clarke gave eight lectures in the Star Theatre on spherical astronomy and planetary motions to about 1,400 university students, and two lectures on astronavigation to members and guests of the Toronto Power Squadron. As Special Lecturer in the Department of Astronomy, University of Toronto, he gave the evening course in astronomy for the Division of Extension. In September he attended a conference on education and the history of astronomy at the American Museum of Natural History, New York,

New York: he was the only representative of a major Canadian Planetarium. During the CBC coverage of the Apollo 15 mission he was guest speaker in some of the discussions. He spent two observing sessions with the 46-metre radio telescope of the Algonquin Radio Observatory, as part of a long-term research project organized by the Department of Astronomy. The project has as its main aim the determination of the circular polarization of quasars. He also investigated the feasibility of computer animation for depicting astronomical phenomena. With the assistance of Dr. C.A. Parr, recently of the University of Toronto and now at the University of Texas, Dr. Clarke obtained an impressive 3-minute section of film for use in the programme "Stars for All Seasons." This film and earlier trial runs were produced through the Computer Research Facility of the University of Toronto, whose assistance is gratefully acknowledged.

Mr. Green continued to shoulder nearly all major administrative duties and still participates fully in the regular schedule of some 26 shows a week. During the year he gave 11 lectures on astronomy and the Planetarium to outside groups, participated in two tv and two radio programmes, and arranged special Planetarium shows for Xerox employees and students at McMaster University. Particularly valuable was the time he spent in training and assisting a team of five ladies of the ROM Members' Committee who acted as guides for conducted tours of the Planetarium exhibit areas. These tours, conducted on Thursdays, have been greatly appreciated by the general public and the ladies concerned are to be congratulated in making them so worthwhile. Mr. Green also visited the Fels Planetarium, Philadelphia, the American Museum-Hayden Planetarium, New York, and the Strasenberg Planetarium, Rochester.



In addition to his other curatorial activities, Mr. Ballantyne visited the Dow Planetarium, Montreal, Quebec and in company with Mr. Jessop, the MacMillan Planetarium, Vancouver, and the De Anza Planetarium and Foothill Planetarium of the University of California. He represented the McLaughlin Planetarium at a convention of the Planetarium Association of Canada in Winnipeg and was elected to the Council of that Association. Towards the end of May he began work on "Denizens of Outer Space," a pre-recorded show scheduled to open the public programme series of the next financial year.

Mr. Creighton continued his educational activities in astronomy for public-school students. Outside the Planetarium he gave an Astronomy Badge course to a group of guides and addressed several astronomy clubs. He has continued to maintain effective liaison between the Planetarium and teachers of astronomy, particularly at the secondary school level, and the Toronto Centre of the Royal Astronomical Society of Canada. He served as President of that Centre and in May represented the Planetarium at the Annual General Assembly of the R.A.S.C. on which occasion he was

made a member of the National Executive Committee. In October he arranged a high-school astronomy club day at the Planetarium. About 150 students and several teachers representing 15 clubs attended. During the day they were treated to a demonstration by Mr. Creighton of the Zeiss projector and heard an address given by the Curator. While en route to Vancouver, Mr. Creighton visited the Centennial Planetarium, Calgary. In company with Mr. D. Halley he also visited the Strasenburgh Planetarium, Rochester, New York.

The only major staff changes were the resignations of two part-time lecturers, Mr. D.J. Fitzgerald and Mr. J. Kemp, the former owing to the pressure of his full-time work and the latter on account of his removal to Vancouver. Both had been with the Planetarium since its opening, and both had in good measure that team spirit so essential to the efficient operation of a complex and demanding project. After their departure Mr. L. Clark, the last of the 'old team' of part-time lecturers, did everything possible to assist the curatorial staff. Without the support of several part-time lecturers it is impossible to maintain an annual schedule of public 'live' shows during weekends and holidays. This fact alone underlines the need to consider using pre-recorded shows.

Colonel R.S. McLaughlin

The Planetarium sustained a great loss on January 6, 1972 with the death of Colonel R.S. McLaughlin. Despite his advanced age he took a keen personal

interest in the development of the projects, and during the first two years of its operation used to visit the Star Theatre. The Zeiss sky fascinated him and he approached astronomy with all the sense of wonder characteristic of early youth. Every November, just before the time of the anniversary of the Planetarium's opening to the public, he would send the Curator a selection of choice chrysanthemums gathered in the greenhouses at Parkwood. On September 8, 1971, he reached his 100th birthday, an event which the Planetarium celebrated by giving a series of seven free public shows in the Star Theatre. To commemorate the birthday, the G.M. Dealers Association of Toronto and District arranged that trees and shrubs should be planted in the forecourt. As a result the large, brick-paved area became much less barren and uninviting. Now integrated with the landscaping is the gift of the Sofu Teshigahara sculpture "The Happy Cloud" from Mr. Walter Carsen. This gift was formally acknowledged at a reception on June 19, 1972, attended by the Consul General of Japan and representatives of the Toronto Japanese Association of Commerce and Industry and Royal Ontario Museum.

Botany

Mrs. Leila Gad,
Curatorial Assistant

One of the results of the reorganization which will follow the proposed expansion of Museum premises will be the creation of a Botany Department. Botany is a life science often neglected in museums, losing out to the traditionally more popular zoological sciences and lacking their dynamic display materials. Modern techniques of specimen preservation and the use of models, films and dioramas should change this and enable plant life to be demonstrated in a stimulating and exciting manner. The new galleries under construction at the National Museum, Ottawa, promise to provide an interesting example of the kind of display that can be created.

Display would be only one aspect of Botany activities in a newly expanded ROM. Two herbaria, collections of dried, documented and mounted plant specimens, and related collections of

seeds and other materials, would also be housed there. These collections are valuable research tools for workers in plant systematics, for plant geographers, ecologists and many others. At present the herbaria are housed in cramped quarters in the Botany Department of the University of Toronto, under the curatorship of Professors J.E. Cruise and R.F. Cain. A Curatorial Assistant, Mrs. Leila Gad, is employed by ROM to assist Dr. Cruise in the Vascular Plant Herbarium, and act as a liaison between the University and the Museum.

Much of Mrs. Gad's work is concerned with the administration of the exchange and loan programme, and with identification, preparation and maintenance of herbarium specimens. Requests for assistance from Museum departments are continuously dealt with. Seeds have been identified for archaeologists, illustrative material provided for artists, books reviewed and botanical nomenclature checked. Similarly, many requests from the public, the government and the media are forwarded from ROM or come directly by mail or telephone. This year they ranged from the mining company with an unidentified indicator plant,

through the newspaper reporter working on poisonous plants, to the school students with wildflower projects.

Apart from these curatorial and public service activities Mrs. Gad is involved in student and collecting field trips (assisting this year on the ROM members excursion to Crawford Lake), research for ongoing projects on the flora of Ontario, work on a checklist of plants in the Caledon Lake area (in cooperation with the Credit Valley Conservation Authority), and with teaching part of a University Extension 'Natural Science' course.

A flourishing Botany Department could add considerably to the existing facilities for research and public service offered by ROM, and could 'balance' the life science scene. It is to be hoped that the plans will not have to stay on the drawing board much longer.

Entomology and Invertebrate Zoology

Dr. Glenn B. Wiggins,
Curator

The past year has been particularly satisfying for members of this department because our efforts to contribute effectively to all sectors of the broad Museum programme are producing visible results. Re-organization of our research collections is proceeding, and steady growth is ensured through our programme of field work; our research programmes continue to advance; and a good balance is being achieved in the educational sphere where our public lecture series continues and our new permanent gallery begins to take shape. The research work of this department on aquatic invertebrates is increasingly in demand by government and university research workers studying aquatic environments and the impact of pollution on them. This increasing demand, coupled with the fact that our educational programme is aimed at interpreting the elegance and complexity of the ecosystem, makes the programme of this department highly relevant to the social context of today and of tomorrow.

Field Programme

The major field expedition since our last report extended over the month of June, 1971, and traversed the north shore of Lake Superior, west to Kenora, with the return trip across Ontario's Northern Route to intersect the river systems of the James Bay drainage area. The expedition, equipped with our truck and laboratory trailer, covered 4,100 miles. Collections amounting to some

12,000 specimens of invertebrates were made at 200 individual localities. Larvae representing 61 species from 45 localities were reared to the adult stage. Mr. Yamamoto was in charge of the expedition, and he was aided by students I. M. Smith and H. E. Frania.

In August a short field trip of two days was made by Mr. Yamamoto, with Mr. Frania, to rivers of the Ottawa drainage.

Dr. Wiggins undertook field studies in Ontario in connection with his faunal study of temporary pools.

Field work concerned largely with Lepidoptera (butterflies and moths) was again conducted by our Research Associate, the Rev. J.C.E. Riotte, at the Queen's University Biological Station, Chaffey's Locks, Ontario. Again the main thrust of this work was directed at collecting eggs from known species and rearing the larvae, thus adding to our growing larval collection material of proven species identity. Eggs of 44 species were reared, mostly in the moth families Geometridae, Noctuidae, and Notodontidae. Eggs of species in the Notodontidae were sent in exchange to the British Museum. In addition to the rearing programme, 2400 specimens of Lepidoptera were collected. A student assistant, Mr. L. Luciuk, aiding Father Riotte also made an important collection of Diptera (flies) in the Chaffey's Locks area.

Field work concerned with Dr. Barr's studies on water mites comprised approximately 18 days in Ontario, six days in Michigan and two days in New York. Mr. Smith carried out an

extensive field programme on water mites in Ontario. In all, approximately 25,000 specimens were added to the research collections.

Curatorial Programme

Re-organization of our research collections continues. Transfer of the Coleoptera (beetle) collection to the new unit tray system was continued by Father Riotte. Mr. Yamamoto made substantial progress with identification and entry into the collection of the major part of our unidentified Trichoptera (caddisfly) material preserved in fluid. He also completed the first phase of re-organization of the pinned collection of Trichoptera. This year's major advance in the Lepidoptera collection was the re-organization by Father Riotte in our holdings of the family Geometridae, precipitated by the addition of the Plath collection of geometrids, purchased during the past year.

Work on the collections of non-insect invertebrates was largely concentrated on the arachnids. Sorting, labelling and organization of specimens for the rapidly expanding water-mite collection has been a major curatorial job, handled by Mrs. Buckley with the assistance of our two volunteers, Mrs. Helen Sutton and Mrs. Katherine Masters. The massive annual programme of rearing water-mite larvae continues under Mrs. Buckley's control.

An unusual curatorial activity of the past year has been a piece-by-piece search of the amber (fossilized pine resin) collection of the Department of Mineralogy. The search by a student assistant, Mr. Bruce Smith, yielded 140 pieces containing insects or arachnids. The amber, all from Manitoba, dates from the Cretaceous period, some 70 million years ago. Specimen inclusions, fully preserved in every detail, represent a sample of the insects that lived when dinosaurs inhabited western Canada. We are grateful to Dr. Mandarino of the Department of Mineralogy for approval to undertake field work in their collection. Our holdings were augmented by purchase of some 100 amber pieces with inclusions from the Dominican Republic.

Research

The Curator's major research on Trichoptera (caddisflies) was continued. Studies involving two groups in the family Limnephilidae were completed, based on materials collected in the department's field work in western North America. Involved are several new species of caddisflies, one of which represents a new genus. In several other genera larval and pupal stages were discovered for the first time. These are important steps in the Curator's larger work on a book, *Larvae of the North American caddisfly genera*.

Dr. Wiggins also completed a study of the biology of caddisflies of temporary pools. This paper culminates a

long-term project, climaxed during the past year by the establishment of proof that larvae of certain species of limnephilid caddisflies persist in basins of temporary pools, devoid of surface water, by over-wintering within the gelatinous matrix in which their eggs were deposited.

Substantial progress has been made in the Curator's study of the general fauna of temporary vernal pools, with the aid of Messrs Smith and Frania.

Exploratory programmes were continued on the use of electrophoresis for detecting comparative protein differences in various groups of Trichoptera, and on chromosome morphology characteristics for different groups, using facilities of the new Laboratory of Analytical Systematics.

Some progress was made in another aspect of the research on Trichoptera in the catalogue of published data on North American Trichoptera being compiled by Mr. Yamamoto. These data are an important part of the background materials for Dr. Wiggins' book on caddisfly larvae.

Research in Lepidoptera by the Rev. J.C.E. Riotte was largely confined to his study of the tussock moth genus *Orgyia* (family Lymantriidae). The limits of variation within several species have been defined, and the status and geographic distribution of these taxa clarified. His work on the moth genus *Anisota* (family Saturniidae) was also advanced through study of additional material made available from the Canada Department of the Environment.

In research on aquatic Acari (water mites) under Dr. Barr, the project centring on immature stages

continued; work on the family Thyasidae was largely completed, and the groups *Eylais*, *Arrenurus*, *Mideopsis* and *Oxinae* are now being studied. A manuscript on methods of study for water mites was completed. Using magnification of 20,000x attained with the scanning electron microscope, an exploratory survey was completed of certain water-mite structures as sources of data for interpreting the evolutionary relationships within this group. In addition, Dr. Barr began studies on several unusual species collected during departmental field work in various parts of North America. Research by Mr. I.M. Smith, a Ph.D. student working under Dr. Wiggins, is being concentrated on the family Pionidae, in particular on their immature stages. His study of the genus *Nautarachna* demonstrates that the relationships of this group, heretofore of uncertain position in a separate family, lie with the Pionidae. A manuscript detailing the findings of this study has been submitted for publication.

The Department's survey of house-dwelling spiders in Ontario proceeds under Dr. Barr, assisted by Mrs. Buckley. Some 200 specimens have been submitted. Information on the biology of these species is being accumulated with the objective of producing an interpretative publication.

Research on hydroids by our new Research Associate Dr. Anita Brinckmann-Voss centered primarily on four species of *Hydra* new to Manitoba. One species new to science

was discovered, as well as two others not previously known in Canada. These studies have been summarized in two papers, now completed. Dr. Voss has recently begun a study, to be continued throughout the coming year, of hydroids of the Atlantic Coast based on material from Newfoundland.

Extra-Departmental Involvements

Through his cross-appointment as a professor in the Department of Zoology, University of Toronto, Dr. Wiggins continued to serve as coordinator for the NRC Negotiated Development Grant in systematic and evolutionary zoology. The final summary report for the three-year term of the entire grant was prepared this year. He also continued as supervisor of Mr. Ian Smith's Ph.D. studies on the systematics of a group of water mites.

In the Museum, Dr. Wiggins served as chairman of the ROM Study Committee. In the Museology programme, he gave a lecture on the work of this department, and as a member of a panel of curators, participated in three joint discussions with the museology students on the museum's role in environmental issues.

Dr. Barr was appointed to the Life Sciences Editorial Board in February.

Dr. Wiggins attended the annual meeting of the Entomological Society of America in Los Angeles in November. While there he made several visits to the galleries of the Los Angeles County Museum, and the Department of Entomology to study the Trichoptera in their collections. He also attended sessions of the annual meeting of the Canadian Society of Zoologists at York University, Toronto.

On May 19 the Museum and Department of Entomology were host to the Michigan Entomological Society for their annual meeting. 46 persons attended the day-long session of scientific papers, followed by a reception in the Department. Papers were given by both Dr. Wiggins and Dr. Barr.

Dr. Wiggins received a grant from the National Research Council of Canada in support of his work on Trichoptera. Two grants were received from the Canadian National Sportsmen's Show, one by Dr. Wiggins to implement completion of the manuscript for Volume III of Dr. E.M. Walker's *Odonata of Canada and Alaska* by Dr. Philip S. Corbet of the University of Waterloo; and the second by Dr. Barr, a renewal of the grant for research on the immature stages of water mites.

Interpretative Programme

An opportunity to develop a permanent gallery, long overdue for this department, came this year. Four cases have now been completed:

Beetles, Butterflies and Moths, Flies, and Evolution of Insects. Our intention in planning this gallery is not only to present to the public a glimpse of the diversity of insects and their relatives, but also to interpret something of the significance of these creatures in terms of the evolution of living things and the ecological relationships that exist among them.

The Department was also involved this year in preparation of an exhibit of native insects for the Royal Bank Building. This opportunity was taken to assemble a set of 10 dust-proof drawers of native insects for use as a travelling exhibit, accompanied by illustrated, interpretative labels. The exhibit was on view from December 1971 to June 1972, and attracted sustained interest. Arrangements are now being made for this exhibit to be installed on a rotating basis in public libraries in the Toronto area.

Dr. Barr is serving as organizer for the Department's contribution to the



Larvae of caddisflies.

science exhibit, ROM: *Nature's Biographer*, to be held in the autumn, 1972.

The Department's public lecture series *Invertebrates—Man's unseen associates* was offered again this year, sponsored as before by the University of Toronto, Division of University Extension. Ten sessions were offered, from October to December, including one day-long field trip, and two laboratory periods in which participants used binocular microscopes to examine a rich variety of invertebrates for themselves. Response to this course continues to be most encouraging to us.

In other interpretative lectures given by the staff, Dr. Barr and Mr. Yamamoto cooperated on a lecture *Insects eye-to-eye* in the Museum's spring lecture series *Through the Microscope*. Dr. Barr gave several lectures on water mites, including *Of mites and men* in the ROM Sunday series on field work by curators. He participated in two television productions: one in the CBC series *What on Earth?*, when his subject was crayfish; and the other in an OECA current events show *Calendar*, an interview concerning his work on water mites. Dr. Barr and Mr. Yamamoto gave several talks about insects and the research work of the Department to children in the Museum's Saturday Morning Club. In September Dr. Wiggins participated as a leader in a workshop weekend of the Federation of Ontario Naturalists at Red Bay, Ontario. Dr. Wiggins and Dr. Barr conducted a spring outing for the Toronto Field Naturalists' Club. Dr. Barr and Mr. Odum served as leaders in a natural history outing sponsored by the Museum. Dr. Wiggins is serving as organizer for a series of ROM public

lectures on urban biology in Toronto, and he took part in a television programme dealing with the work of the Museum for the CBC series, *Telescope*.

Several members of the staff took part in interpreting the work of our department for *ROMarama*, and in an evening for the Toronto Science Teachers' Association.

Identification and Loan Facilities

Because the Department's research collection of Trichoptera larvae has grown to become the central reference for the North American fauna, we continue to handle a heavy volume of identifications for research workers in universities and government laboratories throughout the continent. Identifications of water mites and Lepidoptera are also being handled for research workers in other institutions. Loans of parts of our collections continue to be sent to professional colleagues and students for use in their research.

Identification of specimens and provision of information of all sorts continues to be an important service to government, industry and the public. Some 500 inquiries were received this past year by telephone, mail and personal visits.

New Facilities

Work began on the expansion programme outlined in our previous report. Our entire collection of invertebrates in alcohol, excluding insects and arachnids, has been moved to the expansion area, and stored in new cabinets that are more adaptable to the changing space allocations that we foresee in the future for this department. The space made available through this move has been equipped with new cabinets for insect and arachnid collections in

alcohol, and for drawers of pinned insects. The new layout for this space, designed by Mr. Yamamoto, increases our facilities for collection storage and for working space—important dividends in this first phase of our expansion.

The Department's file of colour transparencies continues to grow. Both Dr. Barr and Mr. Yamamoto have been active in doing close-up photography of invertebrates.

Staff Notes

Mr. Odum, scientific illustrator, has been largely occupied this year with planning and initial execution of our new permanent gallery, and with preparation of the travelling exhibit. In addition, he prepared graphs illustrating some of the Curator's research, and did some morphological illustrations for the *Anisota* study by Father Riotte. His personal work is being concentrated increasingly on paintings of insects, and samples of it were displayed this year at the annual meetings of the Federation of Ontario Naturalists and the Canadian Nature Federation, at the Convention of Medical Illustrators in Michigan, and at the Wye Marsh Wildlife Centre, Ontario. An autobiographic sketch and copies of some of his line drawings appeared in the Guild of Natural Science Illustrators Newsletter. One of his butterfly paintings now hangs in the new Museum Members' Lounge.

Mrs. Buckley, technician, has taken over care of our growing colony of living invertebrates—cultured with the intention that we gain sufficient experience with the requirements of scorpions, tarantulas, millipedes, centipedes and other species to maintain them as live exhibits in our new gallery.

Geology

Dr. Walter M. Tovell, Curator

The scientific work of the Department of Geology continued with two important projects initiated last year. The first was the Geological and Geophysical Survey of the Georgian Bay Basin and the North Channel of Lake Huron, undertaken in cooperation with the Geological Survey of Canada at the Canada Centre for Inland Waters at Burlington, and the Great Lakes Institute Division of the Institute of Environmental Sciences and Engineering of the University of Toronto. The second was a fascinating study of the annually layered sediments of Crawford Lake near Hamilton, Ontario.

Cataloguing of the collection continued apace, and as funds became available new metal cases were purchased to house the re-activated and growing collection.

Extra-Departmental Activities

Dr. Tovell continued his work at the College of Education where he taught the summer and winter course leading to the Type-A Certificate for High School Geology Teachers. Special lectures were given to the Museology Course students within the Museum and a key-note address delivered at the commencement exercise of the Northumberland Secondary School in Brighton. Dr. Tovell also led the 12th Annual Field Trip of the Ontario Geography Teachers' Association to South-Western Ontario. As with

preceding trips, about 100 teachers were involved. A very successful excursion was also organized for the Museum Members to explore the Niagara Escarpment between the Forks of the Credit and Collingwood. Finally, as a member of the Geological Department he undertook an investigation of the possible environmental damage to the Sandbanks Provincial Park on behalf of the Ministry of Natural Resources of the Province of Ontario. This was a very controversial assignment but immensely interesting from the point of view of changing physical environment and the social implications.

The Curator of the Department of Geology served on the organizing committee for the International Geological Congress opening in Montreal August 20, 1972. He received an honorary life membership in the Ontario Educational Association for his work with geography and geology teachers in the province. On behalf of his colleagues, associated with the geological investigation of the Georgian Bay Basin, he presented a paper at the Annual Meeting of the International Association for Greater Lake Research at the University of Wisconsin. In addition he conducted several workshops both within and without the classroom, giving demonstrations of techniques that can be used in the teaching of our sciences. He continued to give service to the community as a member of the Metropolitan Toronto and Region Conservation Authority and as director of the Metropolitan Toronto Zoological Society.

Research

On December 19, 1971, Dr. Walter Tovell was appointed as Associate Director of the Royal Ontario Museum. This unexpected development necessitated a reorganization of the Department of Geology. On May 1st the Department of Geology was placed under the trusteeship of Dr. J. A. Mandarino in order to allow time for a successor to be found for the position of Curator of the Department of Geology.

Research in the Geobotany

Laboratory was largely a continuation of last year's projects. The sediments of Crawford Lake were cored to the bottom of the basin. The upper two meters of the core had annual laminations. The four-meter-long core had spruce pollen in the lowermost levels, indicating that the lake was formed between 10,000 and 14,000 years ago, probably after the collapse of the roof of a subterranean cavern. Such collapse basins are rare in Ontario, and this is the first indication of the age of such a basin. Miss Maria Boyko is reconstructing the vegetation around the lake by means of pollen analysis of the sediments, focusing on the last 500 years as her Master's thesis. Preliminary results indicate that white pine invaded the area around the lake between 300 and 400 years ago. Ragweed pollen became abundant between A.D. 1846 and 1851 as the result of forest clearance and settlement.

Mr. Frank Huhn has initiated a Master's thesis on the history of recent human impact on the environment of the Sudbury Basin mining region. The project involves not only pollen analysis but also analysis of the sediments for elements derived from smelter emissions.

The Laboratory has undertaken the identification of plant materials from archaeological sites. Mr. Larry King (volunteer) and Mrs. Jeanne Chu (graduate student) are identifying cereals and other seeds from the ROM Iran excavations. Mr. King is also beginning to identify archaeo-botanical material in cooperation with the Ontario Archaeological Society.

Dr. M. Saarnisto (Research Associate) who is on leave from the University of Helsinki initiated a project on shoreline displacement along the north shore of Lake Superior.

An expedition was made to Alberta where fossil plants of Quaternary and Cretaceous age were collected.



Shatter cone, evidence of meteoritic impact. Sudbury, Ont.

Work continued on the preparation of manuscripts on the pollen analysis of Great Lakes Sediments. Two papers are in press and a third manuscript has been completed. Pollen analysis of the sediments of the Bay of Quinte was undertaken in support of the Ph.D. project of William Warwick (University of Manitoba).

The reference collection continued to grow with the addition of 250 pollen reference slides and 200 reference seed collections.

Dr. McAndrews taught the University of Toronto course, Botany 435, "Ecological Plant Geography and Palynology." He presented papers at the third International Palynology Conference, Novosibirsk, U.S.S.R.; the American Association of Stratigraphic Palynology, Tucson, Arizona (with M. Boyko and C. McGowan); the International Association for Great Lakes Research, Madison, Wisconsin: one with W. M. Tovell, T. W. Anderson, C.F.M. Lewis and G. B. Hobson; and another with M. Boyko; the 35th Reunion of the Eastern Chapter of the Friends of the Pleistocene, Ithaca, New York.

He organized the ROM autumn lecture series on the field work of staff members. He also delivered a lecture "Grains of Time" in the "Through the Microscope" series. McAndrews also led the ROM natural history field trip for members on May 13.

Continued financial support was obtained from the National Research Council, Geological Survey of Canada, The Quetico Foundation and the Canadian National Sportsmen's Show.

Laboratory Work and Display

This year saw the continuation of the work being carried out on Georgian Bay history. All the material retrieved by W. M. Tovell from his three cruises in the summer of 1971 has been examined. All 37 grab samples have been washed of the clay fraction and sieved for size distribution. Some 55 cores have been described, and six of these have been sampled for pollen and cooked. Both the cores and the grab samples are at the present time being catalogued onto a keysort system. This system plans to incorporate core material from previous years' operations which is stored here in the Museum.

All original cruise charts were inked and three duplicate sets made, plus a series of working charts and maps prepared. For the Great Lakes Conference in April a special series of maps, charts, diagrams, and pollen diagrams were done, and photographed by the Photography Department.

A display of ornamental and decorative building stones of the world was organized with the Display Department to be exhibited in the Royal Bank Building at 20 King St. W. to run for 4-6 months from this June. The display involved 8 cases, and showed material from Canada and the world.

Outlook for 1972-1973 involves the continuing sampling of the present Georgian Bay material in the collection and some material in the possession of Canada Centre for Inland Waters at Burlington, completion of the cataloguing, and retrieval of new material from Central Georgian Bay, as well as participation in the Science Show planned for late summer of 1972.

The Collections

The growth and the cataloguing of the collection is under the guidance of Mrs. M. L. Scheffel and she has done an outstanding job in searching out the exact locations of many of the older specimens. The data is compiled on punch-cards and it is anticipated that within the next 12-18 months we will have the collection completely catalogued and housed in the new cabinets.

Amongst the recent additions are a small suite of rocks from Greenland, and a very complete collection of 188 specimens and 42 thin sections from the Moon River area of Ontario. A suite of Mont St. Hilaire rocks and rocks from the asbestos deposit in Quebec were also added this year. An outstanding donation was a shatter-cone from the Sudbury district.

Mrs. Scheffel continued to be active in arranging outside exhibitions, particularly a special showing of rocks for the Scarborough Gem and Mineral Club and an interesting display of Muskoka gneiss and granite to accompany a series of paintings by Mrs. E. Barton at Victoria University. She also acted as an instructor in the Saturday Morning Club of the Royal Ontario Museum and served in an Executive capacity in Willowdale Mineral Club.

Ichthyology and Herpetology

Dr. W. B. Scott,
Curator-in-charge

Of particular interest this year is the Department of Ichthyology and Herpetology's initiation into the use of the ROM's Electronic Data Processing (E.D.P.) equipment for use in cataloguing. All paper work has been completed and the specially designed printed forms purchased.

Dr. Crossman planned and coordinated this project.

Field Work and Travel

Field studies were conducted from provincial waters to the high seas during this period. In Ontario, collections were made in the Niagara River system, in the Credit and Grand River systems. The staff participated in research cruises on the Atlantic Ocean, through the cooperation of the Fisheries Research Board of Canada. In July, Dr. Scott took part in a cruise on the A. T. Cameron (cruise 188) off Scotian Shelf and Cabot Strait. In September, Eldon Smith went aboard the E. E. Prince (cruise 91) and worked in the Gulf of St. Lawrence region. A biology student, University of Toronto, Mr. P. Ryan, worked for the department aboard a commercial swordfish vessel (Dorothea and Gail) operating off the Scotia Shelf. In February and March, Dr. Crossman, Mr. Peter Buerschaper and Miss Gretchen Markle (ichthyology student, University of Toronto) worked aboard the C.G.S. Dawson during a cruise (CODC 72-004) from Halifax to the southern Caribbean Sea and return. All these field projects yielded rich returns in collections and data.

W. B. Scott worked on Atlantic fishes at the Biological Station, Fisheries Research Board of Canada and the Huntsman Marine Laboratory, St. Andrews, New Brunswick. During July he participated in a cruise aboard the research vessel A. T. Cameron. In October he attended the Annual Meetings of the Quaternary Society at Dalhousie University and spent a day at the technological laboratory, Fisheries Research Board, in Halifax. He also attended the following meetings: in January the meetings of the Canadian Committee for Freshwater Fishery Research at Ottawa; in February the Ontario Council of Commercial Fisheries in Toronto (a Director); in May, the meetings of the Canadian Society of Zoologists, Toronto (a Councillor and Chairman of one half-day session) and in June the meetings of the American Society of Ichthyologists and Herpetologists at Boston (as President-elect and a Governor).

Dr. Crossman continued his survey work on the Niagara River system and participated in the oceanographic cruise of the C.G.S. Dawson in February and March, 1972. In September 1971 he attended the annual meetings of the American Fisheries Society, Salt Lake City, Utah, as a member of the Professional Certification Committee. In January, 1972, he attended the annual meetings of the Canadian Committee for Freshwater Fishery Research in Ottawa; in May, 1972, the meetings of the Canadian Society of Zoologists and in June the meetings of the American Society of Ichthyologists (as a Governor).

Research

Research time seems to be continually and increasingly eroded away by administrative, professional and

teaching duties. Or perhaps, the increasing non-ROM demands for service and information reflect the degree to which the department (and the ROM) is better known.

The Freshwater Fishes of Canada project for the Fisheries Research Board, conducted jointly by W. B. Scott and E. J. Crossman is still undergoing copy-editing in the Editor's office. It is scheduled for publication in early 1973. A considerable amount of work on illustrations, including maps, was done during the year.

Research on swordfish food and feeding habits was continued in cooperation with the Biological Station, Fisheries Research Board of Canada, St. Andrews.

In cooperation with the Department of Indian Affairs and Northern Development, National and Historic Parks Branch, Dr. W. B. Scott undertook to identify, with the able assistance of R. E. Zurbrigg and R. Whittam, approximately 10,500 fish bones from Coteau-du-lac, a site on the St. Lawrence River (Lake St. Frances) a few miles west of Montreal. The final report entitled "Fish remains from Cloverleaf Bastion, Coteau-du-lac site, St. Lawrence River, Quebec" has been submitted and is scheduled for early publication.

The cooperative project investigating the presence of mercury and other trace elements in bone, has been successfully continued. The departments involved include Ichthyology, Mineralogy and Vertebrate Palaeontology. The results of part of the work were prepared and presented by Miss Susan Robinson at the annual meeting of the Canadian Society of Zoologists, held at York University in May.

Research on the lanternfishes (family Myctophidae) supported by NRC funds has been continued to the point where at least three worthwhile publications should shortly appear. The report on *Myctophum punctatum*, submitted last year, has been revised and rewritten and is again ready for submission.

Dr. Crossman's research activities involve the following. A cooperative project with R. J. Beamish and M. J. Merrilees on Karyotypes and DNA studies of fishes of the suborder Esocoidea was completed (and published) in 1971.

Utilizing the facilities of the ROM's Laboratory of Analytical Systematics and financial support of a DUA grant, a start was made on what will be a file of protein and chromosome "fingerprints" for local fishes. These will be adjuncts to the preserved, cleared and stained and x-ray files of these same species. These biochemical and cytological fingerprints may help us to identify parts of fishes, as we are often called on to do for various government agencies.

A study of the geographic variability of the important game fish, the muskellunge, was completed in June 1972 and a manuscript is now in preparation.

A study of the electrophoretic response of the fishes of the suborder Esocoidea has been completed and will be submitted for publication.

The study of fishes of Quetico Provincial Park conducted during recent years has been completed and awaits compilation as a Quetico Foundation Handbook.

A study involving the relationship between the lateral line sensory system and the cardioid scale pits of fishes of the family Esocidae was completed by M. J. Merrilees in June, 1972, under the supervision of Dr. Crossman. Mr. Merrilees was granted the degree of Doctor of Philosophy for this research.

The study of the fishes and of the historic fishery of the Niagara River will be completed in 1973.

A world-wide study of the meristics and morphometrics of the pike, *Esox lucius*, was begun in June 1972.

A bibliography of the chain pickerel, an important game species in many parts of eastern North America, is being completed in cooperation with Mr. G. Lewis, West Virginia Department of Natural Resources.

In cooperation with Dr. R. J. Beamish, a study is being conducted on the vital statistics and meristics of a population of white suckers, *Catostomus commersoni*, with particular reference to dwarfing.

Accessions and Exhibitions

An unusual amount of excellent material was received this year, so much so that all available storage space was occupied and our last reserve area—the corridor—was equipped with heavy duty steel shelving, built over and straddling the storage tanks below. Much of the material received has not yet been unpacked, partly because of the additional storage space required. Exceptionally large numbers of fishes were received this year. Of special significance were the following: many large collections of Ontario fishes gathered by the field staff of the Ontario Ministry of Natural Resources; a collection of Czechoslovakian fishes collected by V. D. Vladykov and donated by the National Museum of Canada; a large series of collections of marine fishes from the Western North Atlantic Ocean, Gulf of St. Lawrence, Caribbean Sea, Bahamas, Jamaica and Trinidad, the latter by the courtesy of Mr. H. Wood, Senior Fishery Officer for Trinidad and Tobago; two excellent series of African freshwater fishes, one from various localities in Ghana received via Mr. Paul Loiselle and one superb collection (of about 15,000 specimens) from Zambia and neighbouring regions collected by Dr. Eugene Balon; collections from

Hawaii, Samoa and a particularly fine collection from New Guinea; a collection of arctic char from Frobisher Bay, Baffin Island in exceptionally good condition.

Loans and gifts of specimens ranging in number to many hundreds of specimens in a single loan were made to 30 organizations or individuals. Specimens surplus to our own needs have been given to a number of universities.

A display was mounted in November and December 1971, in the third floor rotunda, entitled *Perch, Publisher and Printer: The Production of a Natural History Text*. This display was designed and installed by departmental staff and depicted the development of a natural history text. Departmental staff also prepared exhibits in the Fish Gallery area on aquatic habits and on clearing and staining of fishes.

Mr. P. Buerschaper designed and prepared, with the assistance of Eldon Smith, an exhibit on aquatic environments for the Conservation Council of Ontario presentation at the Canadian National Sportsman's Show in March, 1972. They prepared a similar exhibit in 1971. In April Mr. Buerschaper exhibited three paintings at the annual meeting of the Federation of Ontario Naturalists in Sarnia.

Teaching, Lectures, Courses

A course in Ichthyology (no. 465) was presented within the department by Drs. Scott and Crossman, for the Department of Zoology, University of Toronto. In addition to the formal course both Curators lectured to special groups of University students, brought in by their professors from McMaster, Waterloo Lutheran, and Guelph universities.

Dr. Scott served on a number of supervisory and examining committees for graduate students and as outside examiner for graduate programmes at Universities other than Toronto. He gave three-hour lecture and laboratory sessions for 25 students at Huntsman Marine Laboratory during August, 1971, two lectures for the ROM Museology course and participated in series of seminars for Museology students, as well as giving lectures or talks elsewhere.

Dr. Crossman supervised one graduate student (Ph.D.—M. Merrilees) to the successful completion of his programme, served on supervisory and examining committees for a number of graduate students, gave two lectures for ROM Museology course and other lectures and talks elsewhere.

Both Curators lectured to groups at *Romarama*, Metro Science Teacher Night and Metro Teachers Night.

Environmental Advice and Public Service

Requests for information and references continue to increase. The department was pleased to cooperate with the Department of Energy, Mines and Resources in the preparation of a set of revised maps showing the Canadian distribution of the principal commercial freshwater fishes.

Interest and concern in the problem of mercury in fish musculature has intensified. The department cooperated with the Ontario Water Resources Commission (providing specimens from many parts of Ontario), the Canadian Wildlife Service (providing material taken in Lake Nipigon approximately 50 years ago) and the Fisheries Research Board of Canada (in relation to the swordfish study).

In addition, loans and gifts have been made to many individuals and institutions. The identification service has been extended to include a wide variety of provincial and federal government organizations, universities, fellow scientists and others. Laboratory space was provided for sorting and identifications of many hundreds of lots of fishes by Ontario Ministry of Natural Resources, Inventory Unit. The skeleton collection has been particularly well used by individuals engaged in archaeological projects for government departments. A number of visiting scientists and students from institutions outside of Toronto were accommodated within the department for periods ranging from one day to a few weeks. Organizations so served include the National Museum of Canada; Ontario Ministry of Natural Resources; University of Toronto, University of Alberta, University of Waterloo, Colorado State University, Ontario Water Resources Commission, University of Michigan and consulting biologists' organizations.

Invertebrate Palaeontology

Dr. D. H. Collins, Curator

The past year has been one of decision. New methods of display of invertebrate fossils, of preparation of invertebrate microfossils, and of the storage and retrieval of palaeontological data, have been begun. They will effect improvements in these areas for many years to come.

Except for the ramp area at the front, the Invertebrate Palaeontology gallery was closed to the public in late March to allow for the setting up of new displays integrating fossil specimens and salt-water aquaria holding their living descendants. The new displays should bring extinct fossil invertebrates "back to life." Five areas showing the life present in five periods from late Precambrian (more than 600,000,000 years ago) to Devonian (350,000,000 years ago) should be completed by the Fall.

Dr. Peter von Bitter, Assistant Curator and Mrs. LaVerne Russell, Technician II, brought the Micropalaeontology Preparation and Acid-Leaching Laboratory into operation during the year. This laboratory was set up for the extraction of conodonts—tiny phosphatic tooth-like microfossils of great use in determining the relative age of the rocks they occur in. The conodonts are extracted by leaching the limestone or shale host rock in acetic acid, sieving the washed residue, separating out the heavier particles in a heavy liquid (Tetrabromoethane) and passing them through an electromagnetic separator. The conodonts are then picked out individually as the concentrate is scanned through a microscope.

The pilot programme of transferring records of our collections to a computer based system, which was begun last year, received a big boost from the Federal Government in the form of a one-year \$10,000 Research Agreement with the Department of Energy, Mines and Resources, for the "Development and testing of a computer-based system for the storage and retrieval of palaeontological data". This allowed the temporary appointment of Mrs. Janet Waddington, a recent Master's graduate in palaeontology from the University of Toronto, and the acceleration in the development of the programme from the pilot to the operational phase which has now begun. The first publishable printout is expected next year.

Research and Field Work

Dr. Collins repeated his course on Geochronology and Evolution at the Erindale Campus of the University of Toronto, and continued his research on the ultrastructure and functional morphology of fossil and modern cephalopod shells. Much of his field work was devoted to the Ordovician rocks of Ontario, highlighted by a visit to Lonely Island in southern Georgian Bay where the curator and John Monteith spent a very pleasant week with the lighthouse keeper and his wife. Other Ordovician localities visited were Craighleith with John Monteith and Huibert Sabelis, the Waubaushene and Havelock areas with Huibert Sabelis, and St. Joseph Island with Dr. Peter Goodwin from Temple University in Philadelphia. Further collecting trips including a week with Terry Fletcher, Research Associate, on the Cambrian strata of eastern Newfoundland, and a visit with John Monteith to the Devonian rocks of Thedford and Arkona, Ontario, and

to the collections of Ontario fossils housed in the Museum of Paleontology of the University of Michigan in Ann Arbor. Following collection of fossil cephalopods in the North Channel of Lake Huron last year, Dr. Collins spent two weeks in London examining specimens collected by J. J. Bigsby from the same area in the 1820s and now housed in the British Museum (Natural History). They are some of the first fossils collected in North America. The curator delivered a public lecture on "Supermicroscopy" in the Museum's series on "Through the Microscope."

Peter von Bitter received his Ph.D. from the University of Kansas early in the year and was promoted to Assistant Curator. His large manuscript on "Environmental Control of Conodont Distribution in the Shawnee Group (Upper Pennsylvanian) of Eastern Kansas" will be published as a Paleontology Contribution of the University of Kansas. Dr. von Bitter presented a paper on "Taxonomy and Palaeoecology of conodonts and their interrelationship in the Upper Pennsylvanian" at the international symposium on Conodont Taxonomy in Marburg, West Germany in September and was asked to repeat it at the annual meeting of the North-Central Section of the Geological Society of America in DeKalb, Illinois in May. At the Marburg symposium, Dr. von Bitter spent two weeks in the field studying Lower Palaeozoic strata in Sweden. Other field work by Dr. von Bitter in the past

year includes two weeks in the Mississippian Windsor Group in eastern Canada, and four weeks studying Pennsylvanian rocks in Texas, Oklahoma, Kansas, Iowa and Missouri.

Other Staff Activities

John Monteith continued to answer queries and identify the many specimens brought in by the public. His experience in caring for the invertebrate fossil collections for many years is indispensable for helping to sort out the problems encountered in computerizing the data on the collections. Huibert Sabelis' experience with salt-water aquaria has proved invaluable for the design of the

new aquaria in the gallery. A visit with Dr. Collins to the Cleveland Aquarium was particularly helpful also.

Professor Madeleine A. Fritz, Research Associate, returned to her bryozoan studies and has submitted a manuscript entitled "Redescription of Type Specimens of the Bryozoan *Stigmatella* from the Upper Ordovician of the Toronto Region, Ontario" for publication by the Museum.

Terry Fletcher, Research Associate, continued his work on the Lower and Middle Cambrian Trilobite Stratigraphy of southeastern Newfoundland. He presented a paper on this subject to the 1971 Eastern Canadian Biostratigraphy Seminar in St. John's, Newfoundland in October. His paper

demonstrated that his stratigraphic sections are the key to the correlation of early Palaeozoic strata of the North Atlantic. As a consequence, he has been asked to show sections to Cambrian biostratigraphers from all over the world on the 1972 International Geological Congress field trips to Newfoundland.

Dr. A. J. Rowell, Director of the Museum of Invertebrate Paleontology and Professor of Geology at the University of Kansas, was appointed a Research Associate. Dr. Rowell is the outstanding worker on Lower Palaeozoic Inarticulate Brachiopoda which are common in eastern Canada. With the help of Dr. von Bitter and Terry Fletcher, who are familiar with the Lower Palaeozoic stratigraphy of the Maritimes and Newfoundland, it is hoped that Dr. Rowell's research will produce a significant study on the evolution of the group.

Some of the problems of lack of office space and staff reported last year should ease in the next year. The problem of storage space, however, is more critical than ever. A major area of responsibility, Precambrian and Palaeozoic Palaeobotany, which has been neglected up to now for lack of trained staff, must be attended to in the near future.

It has been a stimulating year for everyone in the Department. Discussion and implementation of new methods of display, fossil preparation, and cataloguing have induced spirit and momentum which should carry the Department forward in future years.



Conception Bay, Newfoundland, classical locale for Cambrian trilobites of the North Atlantic province.

Mammalogy

Dr. R.L. Peterson, Curator

The past year has again been a busy but satisfying one for the Department, the accelerated pace broken by several exciting events. An important aspect of the year was a major expedition to Africa in late spring. Objectives were to conduct field studies on mammals, particularly free-tailed bats of the family Molossidae, and to study the chromosome composition or karyotypes of bats, a relatively new approach to systematics that has not been undertaken to any extent in Africa. The Curator, accompanied by Research Assistant Geoffrey E. Turner, departed for Africa on April 23, and after studying specimens in the British Museum (Natural History) in London, they collected specimens and karyotyped bats in Nairobi, Kenya, with the assistance of Field Associate John G. Williams and Mr. Robert Glen. The Curator and Mr. Turner were invited by Dr. Reay H. Smithers, Director, to affiliate with the National Museums of Rhodesia for the duration of the expedition in that country. The Atlantica Ecological Research Station, some 16 miles west of Salisbury, was established as "home base."

In mid-May the party was joined by Research Associate Dr. M. Brock Fenton, Dr. Keith Bell, a geologist with considerable African field experience from Carleton University, and Mr. James Dick, Curatorial Assistant in the Department of Ornithology of the ROM. The field party established camps in the Bindura region at the Chikupo Caves, outside Zimbabwe National Park near Fort Victoria, at Umtali near the Mozambique border, in the

southwest in the Bulawayo and West Nicolson areas, and on the Nuanetsi Ranch comprising one million acres in the southeastern part of Rhodesia. In early June, the Curator and Mr. Turner studied specimens, including several important holotypes, in the Transvaal Museum, Pretoria, South Africa, and then returned to Toronto in mid-June in time to attend the annual meeting of the American Society of Mammalogists at Tampa, Florida. The expedition was a resounding success, with more than 700 specimens added to the collection, including species that had never been collected before in Rhodesia and a series of topotypes of the rare, free-tailed bat *Tadarida mastersoni*.

Another outstanding event of the year was the visit to the Department in February by H.R.H. Prince Bernhard of The Netherlands and his party. The Curator and staff described the research of the Department to the Prince, who was in Toronto for a meeting of the World Wildlife Fund of which he is President.

Acquisitions, Loans, Cataloguing

The collection continues to grow. Of the 3,043 specimens acquired, 2,495 were purchased, 302 were collected by staff, 192 were donated, and 18 were exchanged. Among the new materials were 2,899 specimens of bats representing 14 families, 77 genera, and 148 species, including many interesting or rare species as well as a second specimen of the bat *Vampyressa brocki* described as new to science by the Curator in 1968. Although not as numerous as bats, 144 specimens of other mammals accounted for 18 families, 34 genera, and 36 species.

Aside from the multitude of inquiries from the general public, the continuing inflow of requests from school children, the occasional loan of a specimen to an artist to verify details of a painting or to a commercial firm for a display, the Department continues to supply specimens and information to colleagues in other disciplines here and elsewhere.

Work continued toward the integration of data from specimens into the computerized storage and retrieval system. To date, 2,800 records have been completed and stored on magnetic tape, and considerable time has been saved by the automatic generation of catalogue cards, a task previously done laboriously by hand, for the continual updating of the specimen files.

In late spring, ten new storage cases arrived, and work was disrupted as the old wooden cabinets were removed and the new ones set in place. At the same time the preparatory laboratory in the basement underwent an upheaval. Old cabinets and sinks were torn out, and proper shelves, cabinets, and a new centrally-located table and sink were installed—in effect, a new, modern laboratory was made available for processing specimens.

During the year Dr. Peterson continued to serve as Associate Editor for Mammalogy of the *Canadian Field-Naturalist*, and Dr. Tamsitt continued his duties as editor of the

ROM Life Sciences Publication Series. Consequently, editorial duties were particularly heavy, with the Curator and Associate Curator editing or critically reviewing in excess of 3,000 pages of manuscript written by authors outside the Department.

Research: Bats

Although important research had to be postponed or neglected because of various priorities, the Curator continued his research on the systematics of bats, particularly Old World bats of the genera *Tadarida*, *Glauconycteris*, *Miniopterus*, *Sauromys*, and *Rousettus*. He also continued to unravel the taxonomic tangles of the New World *Molossops-Cynomops* complex and, from his studies of the Arctic hare, prepared a large volume of morphometric data for multivariate statistical analyses. Thanks to the biocoordinate (x-y) digitizer that arrived last summer, the process of measuring and recording data from mammals has accelerated and with an accuracy unsurpassed by previous methods. In addition, the Curator also finalized plans to contribute a chapter on bats to a book about the mammals of the Republic of Malagasy (Madagascar) with French colleagues as co-authors. As Professor of Zoology at the University of Toronto, Dr. Peterson gave the course in Mammalogy, previously given in alternate years, and continued to serve on supervising and examining committees of graduate students.

Dr. J. R. Tamsitt, Associate Curator, continued his studies on the systematics, comparative biochemistry, and ectoparasites of bats with financial support from the National Research Council of Canada, the Canadian National Sportsmen's Show, and the Pure and Applied Sciences Committee of the Department of Zoology, University of Toronto. As Associate Professor of Zoology of the University of Toronto, Dr. Tamsitt participated in the course in Mammalogy offered by the Department and continued as Group Coordinator of the committee supervising the National Research Council-financed Laboratory of Analytical Systematics.

Field work was largely curtailed because of his involvement with editorial and other duties, but with Research Associate Dr. Dario Valdivieso, the Associate Curator conducted field work in El Salvador during July and August. With the cooperation and help of Dr. Guillermo Alfaro A. of the El Salvador Department of Health, an interesting series of bats was obtained that yielded considerable data on blood morphology and parasites. Because of his continuing interest in bats and their relation to Public Health, in September Dr. Tamsitt took the course in Laboratory Methods in the Detection of Rabies offered by the U.S. Center for Disease Control in Atlanta, Georgia, and in conjunction with hematological work underway with Dr. Valdivieso, he also took in November the course in Blood Morphology at the U.S. Center.

Staff Notes

Miss July Eger, Curatorial Assistant, continued to plod her way through mounds and heaps of bats and also found time to study and measure more

than 1,000 specimens of bats of the genus *Eumops* for her M.Sc. research programme at the University of Toronto under the supervision of the Curator. A multivariate analysis of the entire group and a univariate analysis of sexual dimorphism in five species are only two of the approaches she is using in her research. In February she joined a group of students and faculty from Carleton and Queen's Universities for a 10-day trip to the Amazon River at Leticia, Colombia, where she collected bats and studied their habitat.

Drs. Peterson, Tamsitt, and Miss Eger attended the annual meeting of the American Society of Mammalogists at the University of British Columbia in June. Dr. Tamsitt chaired an afternoon session of papers presented by members of the Society and continued another year as a member of the Resolutions Committee. Dr. Peterson was active in his life-time appointment as Director of the Society. The Curator also attended the Second Southwestern Bat Conference at Albuquerque, New Mexico, in late November and presented a paper entitled "A preliminary review of the systematic status of the *Tadarida africana-fulminans-mastersoni* complex."

Mr. Geoffrey E. Turner, Research Assistant, continued to assist the Curator in his research on bats and Arctic hares. In February, he visited the laboratory of Dr. Robert J. Baker at Texas Tech University, Lubbock, Texas, where he learned karyotyping techniques that were applied during the African expedition.

The several Associates of the Department had a productive year. Stan E. Brock continued to provide specimens to the growing collection of mammals from Guyana, and Mrs. Noreen Curry continues her interest and support of the Department's research expeditions. Dr. M. Brock Fenton continued his investigation of the ecology and behaviour of Ontario bats and further refined equipment for monitoring bat activity to include the use of a photomultiplier that allows

observations under low light conditions for night work. Dr. Dario Valdivieso initiated a long-term project on the hematology and blood parasites of bats in collaboration with the Associate Curator and colleagues in the School of Hygiene, University of Toronto, and the Center for Malarial Studies, U.S. Center for Disease Control, in El Salvador. John G. Williams continued to provide specimens from Africa and

contributed to the success of the Rhodesia Expedition.

The Department welcomed as Research Associate Dr. Anne Innis Dagg, formerly of the Taronga Zoo, Australia, and the University of Guelph. Although her interest in mammals is broad, Dr. Dagg's specialty is locomotion, particularly in large African mammals, and her work will undoubtedly increase the scope of research in the Department.

Paul Geraghty and Mrs. Sophie Poray, who was previously with the Office of the Chief Biologist, continued to provide excellent illustrations for publications and exhibits. Jim Borack and Brian Herbert continued to process the considerable inflow of new specimens, and Brian also devoted considerable time to the taxidermy of specimens to be included in the Department's section of the Science Show to be opened in late August.

Joan Rutherford, T. Don Hammell, Allan Outram, and Jay Adams deserve credit for their great help during the summer of 1971, as does Mrs. Liivi Suigu for her help in the winter. Mrs. Penny Lawson and Mrs. Marion Pinkerton, of the ROM Members' Committee, continued their needed services on a volunteer basis throughout the year. Mr. A. Outram, who has volunteered his services so often in the past, was seriously ill in the summer of 1971 but is now on the road to recovery. Mrs. Geraldine Rerup and Miss Eileen Nespiak continued their efficient and enthusiastic support of the curatorial staff.

Curator of mammalogy shows unique Ontario grizzly bear skull to HRH Prince Bernhard of the Netherlands (right) and Peter Scott.



Mineralogy

Dr. J. A. Mandarino, Curator

The end of this fiscal year saw the retirement of Miss Muriel Ward as Department Secretary. Muriel was Department Secretary for 25 years and will be missed by all who have worked with her.

Mrs. Sylvia Naldrett, a part-time research assistant for the past two years, has left to accompany her husband, Prof. A. J. Naldrett, on his sabbatical. We hope she will return to us in a year. Among new staff who have joined us this year are Miss Helen Driver, Miss Susan Robinson, and Mrs. Doris Shaw (part-time). Miss Driver is serving as Department Secretary with Miss Ward, and will continue in that position after July 1st. Miss Robinson started with us early in the year on a joint project of the departments of Ichthyology, Mineralogy, and Vertebrate Palaeontology. Mrs. Shaw is assisting Mrs. Galt with the horrendous job of cataloguing new specimens.

Another person who has been extremely valuable to the department is Eric Bjarnason. A high school student interested in minerals, Eric has volunteered his services and has assisted in many ways.

Mr. Rod Stavely, recently retired from Falconbridge Nickel Mines Ltd., is also serving as a volunteer in the department. Mr. Stavely's knowledge of mining localities and interest in minerals is proving of great value to us.

The department was most fortunate in obtaining the services of two distinguished men as research associates. Dr. J. Satterly retired from the Ontario Department of Mines, and almost immediately took up residence in the department. Dr. Satterly, a former member of the Museum staff, is working on our Ontario minerals, specifically towards upgrading our locality information. We hope that the completion of this work will result in a check list of Ontario minerals as represented by material in the ROM collections. Mr. Julius Weber, the noted medical photographer from Mamaroneck, New York, is our second new research associate. Mr. Weber's unselfish and often personally costly attention to the department's photomicrographic needs is greatly appreciated.

New Specimens

Over 800 specimens, of which 21 were species new to the collection, have been registered during the fiscal year 1971-72. Of these, about 300 were purchased and the rest were acquired by donation, collecting or exchange. The Anglo American Corporation of South Africa presented a fine octahedral diamond crystal weighing 11.75 carats. Dr. Louis Cabri of the Department of Mines, Energy and Resources, Mines Branch, Ottawa presented the type specimen containing two new minerals; mooihoekite and haycockite, and also the polished sections and data used in redefining michenerite. Mr. David Lin of Toronto presented a carved, grey fluorite vase, Dr. Stefan Graeser of Basel, Switzerland presented two species—cafarsite and asbecasite; Mr. Milt Stitt, a Montreal mineral collector, presented an excellent specimen of



Covered goblet carved from rock crystal (quartz) and lapis lazuli by George Stangl.

lemonite, and Dr. A. J. Naldrett of the University of Toronto presented a polished section and specimen of the mineral godlevskite (all species new to the collections). Dr. Jack Satterly, on behalf of the Department of Mines and Northern Affairs (Ontario), presented a collection of Ontario minerals. These are of special importance since they are all accompanied by detailed locality data. Mr. William Pinch of Rochester, New York presented several specimens of rare minerals from Katanga (several of these were new to the collections) and a fine sphere of rutiled quartz. Falconbridge Nickel Mines Ltd. (Strathcona Mine, Sudbury) presented the ROM with some unusual pyrrhotite specimens from that mine. National Institute for Metallurgy (Johannesburg, South Africa) presented the ROM with two species new to the collections: willemseite and nimite.

Exchanges were undertaken with The Johannesburg Geological Museum, Republic of South Africa; Dr. A. Montgomery, The U.S. National Museum, The National Museums of Canada, Mr. J. Polityka, Dr. Jiri Just, Australia; Dr. Louis Coetzee, Republic of South Africa; Mr. William Pinch, Rochester, and Mr. David New, Montana.

Micromounts of 22 specimens were added to the collection. Most of them were prepared in the Department.

Important and exciting acquisitions to the gem collection this year included an opal box containing a superb opal (Australian), demantoid, 5.76 carats (very large for this gemstone), kunzite, 45.15 carats, notable for its fine colour, and the rutiled quartz sphere presented by Wm. Pinch.

Public and Scientific Activities

Ninety-four individuals each submitted one to five specimens for identification. About 90 letters answering requests for information were written. Many of these people were sent various pamphlets, etc.

About 170 non-returnable fragments and other specimens were sent to mineralogists in other institutions on this continent, in England and Japan for study purposes.

Two Gandolfi x-ray diffraction identifications were made for Dr. P. Cerny, University of Manitoba, and 12 Fibre photographs (Weissenberg, X-ray Diffraction) of Serpentine Group minerals were sent to Dr. E.J.W. Whittaker, University of Oxford, England.

As usual, the department assisted other departments (Far Eastern, Textiles, Office of the Chief Archaeologist) in the identification of gems and minerals. As in past years, the Conservation Department used our x-ray diffraction and x-ray spectrographic equipment.

Lectures, talks, meetings and seminars made demands upon the time of the entire curatorial staff. Dr. Wicks addressed the Second International Conference on Physics

and Chemistry of Asbestos Minerals, in Louvain, Belgium in September, on serpentine mineral textures in asbestos-bearing chrysotile, and Dr. Mandarino joined Susan Robinson and W. B. Scott in a talk on mercury levels in musculature and bone of the yellow walleye, given to the Canadian Society of Zoologists at York University in May. Dr. Wicks chaired three seminars in aspects of serpentine minerals, two to the Adams Club, McGill University, and one to Falconbridge Nickel Mines staff, Wabowden, Manitoba, as well as addressing the Brampton Rock & Mineral Club, and joining W. M. Tovell on "Rock Textures" in the ROM science series. Dr. Mandarino gave ten talks to amateurs, spoke in the ROM "Through the Microscope" lecture series, and conducted a mineralogy course for amateurs each week from January through April. Dr. Gait organized the 8-lecture series, "Through the Microscope," and addressed 9 talks to various groups. Drs. Mandarino, Gait and/or Wicks also attended a total of 16 symposia, annual meetings and conferences, in addition to field work in Ontario, Quebec, Manitoba and northern New York State.

Research

Research activities in the department were nevertheless not stinted. Dr. Mandarino with Dr. W. B. Scott of

Ichthyology, Dr. C. McGowan of Vertebrate Palaeontology, and Miss Susan Robinson continued work on the trace element content of dinosaur bones and fishes. He and Mrs. Naldrett under a Joint Committee on Powder Diffraction Standards Grant-in-aid are producing x-ray powder data for the JCPDS file. Dr. Mandarino completed his study of an amphibole mineral from the Wilberforce area, Ontario. A paper on the amphibole will be presented at the 24th International Geological Congress in Montreal in August.

In Dr. Gait's x-ray powder diffraction studies of the ferberite-huebnerite series, about 160 specimens were studied, and x-ray diffraction and x-ray fluorescence data were collected. The work was performed on a Guinier de Wolf x-ray camera by Mrs. Sylvia Naldrett. The work was supported by two Department of University Affairs Grants.

A specimen of bikitaite was supplied to Dr. V. Kocman at the University of Toronto for a structure determination. Dr. Gait's collaboration with Dr. Kocman led to the solution of the structure and the publication of an abstract in the programme of the American Crystallographic Association (1972) meetings in Albuquerque. Descriptions of three varieties of hauchecomite were completed, the electron microprobe

data obtained by Dr. D. C. Harris EMR (Mines Branch) Ottawa. The manuscript has been accepted for publication by the Canadian Mineralogist. The identification of mitchenerite in a specimen from the Sudbury area resulted in a study of this specimen by Dr. L. Cabri and Dr. D. C. Harris EMR (Mines Branch) Ottawa. The study indicated that a redefinition of the species was necessary and a paper to this effect has been accepted for publication by the Canadian Mineralogist.

Dr. Wicks' identification and classification of over 300 serpentine mineral specimens has almost reached the half-way mark. The acquisition of a Guinier camera has been a major advance in this study. The superior resolution, shorter exposure time, and four-sample capacity combine to give better results in a shorter time. However, it also meant that specimens identified by the 114.6 mm Debye-Scherrer camera and powder diffractometer had to be rerun on the Guinier camera. The fibre diffraction studies of chrysotile asbestos on the Weissenberg camera are also progressing, but this work is slower than the Guinier powder diffraction.

Approximately 450 thin sections were produced this year in our lab, most of these of serpentinized ultramafic rocks. Dr. Wicks has made a reconnaissance study of the serpentine minerals and textures on samples from Manitoba, Northern Ontario, and Eastern Quebec, and some of the unusual textures have been x-rayed with the microbeam camera. The results of these preliminary studies have led to the selection of a small area in the Quebec

asbestos belt for detailed structural and mineralogical studies in conjunction with Dr. R. Y. Lamarche of the Quebec Department of Natural Resources in Quebec City and to the final stage of study of the Manitoba serpentinized ultramafic rocks in conjunction with Dr. R.F.J. Scoates, of the Manitoba Mines Branch, Winnipeg. Both studies will be carried out in the coming 1972-1973 year and will end in the publication of new data on serpentine minerals. The Manitoba study will illustrate the distribution of the various serpentine minerals in the province, and the Quebec study will illustrate the relationship between various serpentine minerals and their structural environment.

This year 815 Debye-Scherrer (and single-crystal) patterns were produced. In addition, 300 Guinier patterns were produced. Since each of the Guinier patterns represents three specimens done simultaneously, our total for the year is about 1700. This is slightly more than twice the number produced last year. Our increased output is directly related to the use of the Guinier camera. We expect even more data next year, thanks to Noranda Mines Ltd. who kindly donated money for a second Guinier camera and a special film reader.

Ornithology

Dr. J. C. Barlow, Curator

A recent survey of scientific collections of birds in North America shows the Department of Ornithology of the Royal Ontario Museum ranking in the top 10 in all four categories assessed. The ROM has the 9th largest collection of scientific study skins of birds, the 6th largest collection of skeletons, the 4th largest collection of birds preserved whole in spirits and the 10th largest collection of sets of eggs and/or nests, out of a total of 860 individuals and institutions housing research material relating to birds and responding to questionnaires. The majority of the ROM's 125,000 bird specimens have complete data. The international stature of our collection is emphasized because in two areas—skeletons and spirit specimens—we have seen burgeoning only in the last several years of mission-oriented and selective acquisition. To this end, our Museum year has been highlighted by a vigorous programme of field work involving collecting of data and specimens. Nearly 300 species or subspecies of birds not previously represented in our skin and/or anatomical holdings were obtained in the fiscal year.

Graduate and undergraduate students have been increasingly involved in our field and museum activities. Eight graduate and five undergraduate students from the University of Toronto and three students from the University of Nuevo Leon, Monterey, Mexico assisted staff members in research activities.

Very highly prized among the year's acquisitions are the first high-fidelity tapes known to science of the songs

of the San Andres (Colombia) *Vireo caribaeus*, the San Andres and Providencia (Colombia) Black-whiskered Vireos *Vireo altiloquus*, and the Highland Shrike *Vireo Vireo melitophrys* of Morelos, Mexico. A number of other species were taped for the first time and added to our embryonic tape collection.

Of special import as well was our temporary exhibit entitled "What Bird Bones Tell Us," displayed in the third floor rotunda in February—March of 1972. Mrs. Carol Goodwin, Curatorial Assistant, played the major coordinating role in the development of this show. Demonstrated was the relatively broad spectrum of information derivable from avian skeletal material, from aging of individual song birds to insights into former distribution of species based on analysis of skeletal elements from Amerind middens.

Research and Acquisition

Field work both for research and acquisition again figured prominently in Departmental activities in this past year. In addition to our regular museum budget, the Department was supported in these endeavours by funds from the National Research Council of Canada and the former Department of University Affairs. Department members worked on a variety of projects in Ontario, British Columbia, Saskatchewan, Manitoba, Newfoundland, Prince Edward Island, Nova Scotia and New Brunswick. Outside of Canada field parties studied in Utah, New Mexico, Nevada, Oregon, Arizona and California; in Mexico in the Distrito Federal, in the state of Morelos and on Cozumel Island, territory of Quintana Roo; in Costa Rica; in British Honduras; the Caribbean Islands of Providencia and San Andres governed by Colombia; elsewhere in the West Indies, on

Jamaica, in the Bahamas on Andros, New Providence and Great Abaco Islands; in the Lesser Antilles; and also in Rhodesia.

Laboratory Activities

In the laboratory we continued to place emphasis on the assessment of avian data using multivariate statistical techniques. The Curator, aided by Dr. D. M. Power, Associate Curator, and Miss V. I. Klemt, Research Assistant, completed phenetic comparisons of species in the avian family Vireonidae. Fifty-six skeletal characters per specimen of 36 taxa were treated to principal components analysis and taxonomic distance, correlation and cluster analysis. Formerly unrecognized, phenetic similarities were demonstrated between Solitary Vireos (*Lanivireo*) and the Yellow-winged (*Vireo carmioli*), Blue Mountain (*Vireo osburni*), Hutton (*Vireo huttoni*), and Gray Vireos (*Vireo vicinior*) all previously thought to be related to White-eyed Vireos (*Vireo*). The Slaty-Vireo (*Vireo brevipennis*) previously thought to belong to a separate genus *Neochloe* was shown to be a member of the White-eyed Vireo (*Vireo*) group. The phenetic likeness of the Golden Vireo (*Vireo hypochryseus*) to Red-eyed Vireos (*Vireosylva*) was confirmed. Each of the subgroups of the Vireonidae were also analyzed separately. Data from comparative myology (from R. Orenstein), observations of behaviour, analysis of vocalizations, and studies of chromosomes (karyology, aided by G. Shields and R. D. James) were also obtained for and used in support of skeletal studies. A paper on the comparative behaviour of Red-eyed

(*Vireo olivaceus*?) and Philadelphia Vireos (*Vireo philadelphicus*) is in preparation. In addition, Barlow with James and Shields, studied in the field and laboratory the phenetic and phyletic affinities of the Traill's Flycatcher (*Empidonax*) complex comparing behavioural, ecological, skeletal, chromosomal and protein characters, using in part the facilities of the Laboratory of Analytical Systematics located in the ROM.

Dr. Power, Associate Curator, continued his studies of the evolution and ecology of certain bird species on certain coastal islands. A paper involving a statistical analysis concerning the number of bird species on the California Islands was accepted for publication in the journal *Evolution*. Dr. Power also collaborated with Dr. J. R. Tamsitt (ROM Mammalogy) in a study of sexual dimorphism and geographic variation in the Spear-nosed Bat (*Phyllostomus discolor*); with Dr. R.I.C. Hansell (Zoology, University of Toronto) on an analysis of the zoogeography of West Indian birds; with Dr. A. K. Ray

(Anthropology, University of Toronto) assessing the similarity of language and dialect groups based on facial features in the state of Orissa, India; and with Mr. P.H.R. Stepney on Brewer's Blackbirds (*Euphagus cyanocephalus*). In June Dr. Power left the Museum to assume the office of Director at the Santa Barbara Natural History Museum in Santa Barbara, California. This institution is involved in regional studies in archaeology and the sciences, emphasizing the local California area. Dr. Power intends to continue his studies of the fauna of the California coastal islands.

Rev. R. C. Long, Research Associate, continued his banding studies of the American Robin (*Turdus migratorius*), the Eastern Phoebe (*Sayornis phoebe*) and the Blue Jay (*Cyanocitta cristata*). In addition, he continued his ecological studies of three lakes and their avifauna on the Madawaska Highlands, Renfrew County. Five papers are currently in preparation or have been submitted for publication.

Dr. J. D. Rising, Research Associate, used the research collection in his studies of geographic variation and phenetic affinities of Savannah Sparrow (*Passerculus sandwichensis*) populations. In addition, he completed a manuscript on the birds of Western Kansas.

Dr. H. Savage, Research Associate, in charge of the Department's osteological collection, identified avian bone material from archaeological

sites in Labrador, Newfoundland, Ontario, British Columbia, and the Northwest Territories. Former distribution of birds and the differential use of various species by native peoples was determined from these studies.

Mr. Ross D. James, Curatorial Assistant, completed his field work and laboratory studies of the comparative behaviour and evolution of Solitary (*Vireo solitarius*) and Yellow-throated (*V. flavifrons*) Vireos. He also was involved in a karyological assessment of the Least Flycatcher (*Empidonax minimus*). Mrs. Goodwin, Curatorial Assistant, revised a manuscript on migratory behaviour in the Elf Owl (*Micrathene whitneyi*) in anticipation of submission for publication.

Mr. E. Hanna, student, Mr. D. Hughes, student assistant, and Miss Klemt, Research Assistant, assisted Drs. Barlow, Power, and Rising in a variety of research projects.

Public Liaison and Activities

As in every year we again were involved in a variety of service

activities for the general public and for special school groups. Letters asking about bird habits, identification, distribution and the people who study them were received. So often a school child writes to ask for everything we know about, for example, ducks. Unfortunately the plethora of information available on such a subject precludes our doing that, but we do supply him with a brief bibliography of four or five titles of books geared to his general age and class in school which ordinarily will supply more than ample information.



Pelican—air sacs.

Loans to colleagues in other institutions are always an important part of the curatorial routine and this year was no exception.

Department staff used the collection for teaching purposes this year. Mrs. Goodwin worked as a volunteer with the ROM's Saturday Morning Club and made use of Bird Room facilities as part of her instructional repertoire. Dr. Rising, who taught a course about birds in the University of Toronto extension classes, also made use of the Bird Department in his teaching. A seminar course in evolutionary biology was convened on occasion in the Bird Room where the course in systematic ornithology was also taught by Dr. Barlow.

The overall facilities of the Department were enhanced by the addition of a 12' x 24' aviary with temperature and light control. Currently housed there are House Finches (*Carpodacus amplus*) and Juncos (*Junco insularis*) from Guadalupe Island (Mexico) and House Finches (*Carpodacus mexicanus*) from California obtained by Dr. Power to be used in behavioural studies gauged to gain understanding of adaptations of island environments.

Drs. Barlow and Power attended the 89th meeting of the American Ornithologists' Union in Seattle, Washington in September 1971. Barlow presented a paper in the scientific programme entitled "Comments on the Systematics and Biology of *Vireo 'Neochloe' brevipennis*."

Lectures, Scientific Papers, Meetings

Barlow, Power and Rising attended the Fifth Numerical Taxonomy Conference held at the University of Toronto in November 1971. Power and Rising served on the local committee on arrangements for that meeting. Rising served as the Chairman of the local committee for the Ontario Universities Biological Conference held at the University of Toronto in March 1972. In April, Rising attended the annual meeting of the Cooper Ornithological Society in Las Cruces, New Mexico and Power attended the annual meeting of the Classification Society in Chicago, Illinois.

Barlow talked to the Toronto Ornithological Club about "Vireos: a Survey" in January 1972. In February he was the guest speaker at the annual meeting of the Ontario Bird-Banding Association, speaking on "Adaptations in Island Birds." Rev. Long spoke to the Brodie Club in September 1971 and to the Toronto Ornithological Club in October 1971 on the American Robin. He also spoke to the Barry's Bay Lions Club in December on birds in general.

Dr. Savage attended the meeting of the Canadian Archaeological Association, St. John's, Newfoundland in February 1972.

Extra-Departmental Involvements

Dr. Barlow served as Science Curators' Council Chairman in 1971-1972, and for the American Ornithologists' Union on the Special Committee on Bird Collections (a paper entitled "Bird Collections in the United States and Canada," co-authored with R. C. Banks and M. H. Clench is in press in the *Auk*) and on the Special Advisory Committee on Bird Collections; and on the editorial review board of the international

journal *Bird-Banding*. Dr. Power served on the research subcommittee of the NRC Negotiated Development Grant involving the ROM and the Department of Zoology, University of Toronto. He was also group coordinator for the electronic data-processing facility financed by that grant. Dr. Savage is currently President of the Ontario Archaeological Society.

Grants and Teaching Programmes

Grants in support of research were held by several members of the Department. Dr. Barlow continued on the third year of a grant from the National Research Council of Canada for studies of "Evolution in the Avian Genus *Vireo*." Dr. Power began his second year of a three-year grant from NRC for studies of ecology and evolution of island bird species, expanding and colonizing bird populations, and studies in population ecology. Dr. Rising began his second year of a three-year NRC grant for studies of systematics of grassland species of birds. Dr. G. K. Peck, a volunteer in the department, received another grant from the Canadian National Sportsmen's Show for support of the activities of the Ontario Nest Records Scheme.

Dr. Barlow, in his capacity of Associate Professor of Zoology, University of Toronto, taught Zoology 467/1020, a course in systematic ornithology. He supervised, in

Zoology, the research of one Master of Science Candidate and three Doctoral Candidates and in addition served on the advisory committee of four other Doctoral candidates.

Dr. Power, as Assistant Professor of Zoology, offered a course Zoology 1040—Statistical Classification in Biology. He supervised the research activities of two Master of Science candidates and served on the graduate committee of one Doctoral candidate. Dr. Rising in addition to his regular teaching duties supervised the research activities of two Doctoral candidates.

Barlow and Rising again conducted an informal bi-weekly night-time seminar at the Museum and in class members' homes on advanced ornithology and evolutionary biology for graduate and undergraduate students in Zoology, Botany, and Anthropology. Rising again delivered eight lectures on ornithology as part of the natural science course of the University of Toronto extension service.

Vertebrate Palaeontology

Dr. A. Gordon Edmund,
Curator

Again, the year was dominated by the gallery renovation programme. Dr. McGowan and Dr. Edmund decided that the most effective use of the available space and specimens would be to produce a spectacular gallery of entire skeletons. To aid in interpreting the life and times of the Age of Dinosaurs, extensive use of modern communications media seemed essential. These ideas were translated into an information package, and presented to John Anthony and his department. All parties agreed on a tripartite division of the long, narrow gallery. The north section will feature the history of dinosaurs, from their death, through fossilization, to collection and exhibition. In this area, a mini-theatre will automatically show short films on these subjects.

The second section will feature the life of Cretaceous dinosaurs from Western Canada. Brighter colours, a reconstructed background with suitable plants, and giant transparencies set into the walls will complement newly posed skeletons.

The third and final section will contain four skeletons of Jurassic dinosaurs, exhibited for the first time. Again these will be presented in lively poses accompanied by appropriate vegetation. In addition, there will be an audio-visual sequence in which slides, movies, and sound and lighting effects, will combine to form a memorable finale to this tour through the Age of Dinosaurs.

Work began on the new gallery in September this year. Because of budgetary restrictions only three additional technicians could be hired for the project: Rudy Zimmerman, Michael Bain, and Steven Trenka. They were selected because of their talents in metal and plastic forming, moulding, casting, sculpturing and similar skills. The first project consisted of removing all specimens except the complete skeletons. These huge mounts, weighing thousands of pounds, were successfully hoisted and moved to their new positions by our own staff. Each was then surrounded by a protective framework of lumber and heavy plastic before the contractors arrived. During the winter the ceilings, floor ramps and walls were constructed, and new air conditioning ducts and electrical feeds installed. The simulated badlands decor of the north section is now almost complete, and part of the second section begun. A new skeleton of *Lambeosaurus* standing in a trackway of footprints from British Columbia is almost complete. Several other skeletons have been partly re-posed so as to be more anatomically accurate or artistically pleasing.

The skull of the very rare dinosaur *Parasaurolophus* was removed from the old mount and the rock removed from the underside. A mould was made of the skull and skeleton and replicas are being exchanged with other institutions. One exchange will bring us a skeleton of the unusual aquatic mammal *Paleoparadoxia* from Japan. Several exchanges for other materials have been made, increasing the diversity of the collections.

Drilling the extremely hard bones of some of the Jurassic skeletons required the purchase of a drill press equipped with water-cooled diamond core-drills. Wherever possible the new skeletons will be supported by steel hidden within the bones.

To toughen the bones of some of the older dinosaur specimens, a new vacuum impregnation tank was constructed. This permits the bones to be filled with a plastic emulsion without softening the old shellac which had preserved them up to the present time. Increasing use of polyester and similar resins made imperative the installation of a blower and duct system to feed fresh air to the preparation lab.

New steel modular shelving in the storage warehouse at Weston provided more storage space without addition to the floor area. This and the building of similar shelving in the basement hall relieved the acute situation caused by the removal of the less spectacular specimens from the dinosaur gallery.

The department obtained the 1968 International Carryall truck. In return the 1967 Chevrolet panel truck was transferred to the Geology Department. The Department now has two four-wheel drive V-8 vehicles, and finds that the system of using these in combination with a rented utility trailer provides an economical and efficient form of transportation for distant field work.

Field Work and Acquisitions

Field work in 1971 was severely restricted because of display commitments. A crew of summer students excavated brontothere bones near Eastend, Saskatchewan.

Graduate student Paul Ramaekers visited many Eocene sites in Wyoming and enlarged our well-documented series of these early mammals. Mark Wilson, also a Ph.D. candidate, made numerous collections of Tertiary fish in

southern and central British Columbia, especially on Horsefly River. Raymond Brousseau returned to the Devonian fish beds near Maguasha on the Bay of Chaleur, but despite increased effort found fewer specimens than in 1971.

The collection of Pleistocene vertebrates was considerably increased by generous donation of a large number of bones and teeth from the private collection of Mr. and Mrs.

Brayfield of Osprey, Florida. The ungulate mammals of this and other collections from the same area were studied and identified by Mr. David Simms, under the supervision of Dr. C. S. Churcher.

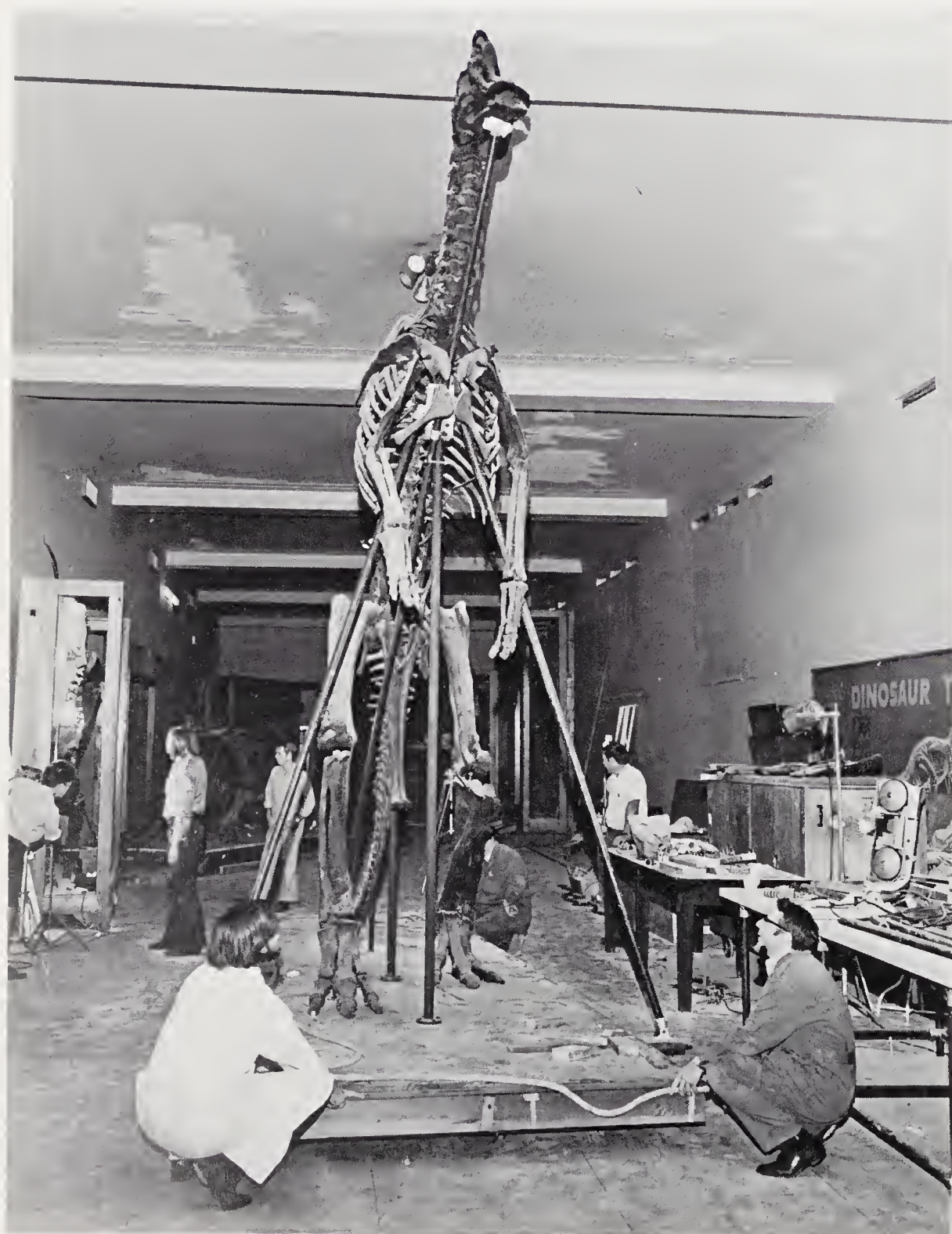
Other increases to the collection included several partial ichthyosaur skeletons of both research and display value. Dr. Chris McGowan is strengthening this area of our holdings by an active campaign of purchase, collecting, and replication.

The number of catalogued vertebrate fossils is now 11,826, an increase of 3,868 over the same time last year.

Two field parties were working before the end of June 1972. Graduate students Paul Ramaekers and Albert Brantley (University of Georgia) are exploring early Tertiary outcrops in northern British Columbia and the Yukon. Another group of four summer students is assigned to the Oligocene, Palaeocene and Cretaceous of southwest Saskatchewan.

Teaching, Travel and Research

Dr. Edmund spent much of the current year on research and administrative work on the new dinosaur gallery. A script and layout of the audio-visual equipment for the Jurassic section was prepared. Considerable palaeobotanical study resulted in a selection of typical plants for the backgrounds of the Cretaceous and Jurassic dinosaur dioramas. Dr. Edmund visited six countries in the Caribbean area and secured a



Department technicians moving dinosaur to new gallery.

valuable photographic record of plant specimens similar to those which existed in dinosaur times.

Arrangements have been made to obtain dried or preserved plant specimens for use in the displays.

Dr. Edmund and Dr. McGowan attended the annual meeting of the Society of Vertebrate Paleontologists in Washington in November. Dr. McGowan read a paper on ichthyosaur classification and structure. Dr. Edmund spent some additional time at the U.S. National Museum studying their skeletons of *Stegosaurus* to obtain information preparatory to the mounting of the ROM specimen.

Dr. Edmund supervised the activities of Mr. Albert Brantley, a graduate student from the University of Georgia, who was studying the anatomy of the giant ground sloth *Eremotherium*, and learning techniques for the conservation and mounting of large fossil skeletons.

In consultation with Dr. Edmund and Dr. McGowan a series of lively reconstructions of dinosaurs and other fossil vertebrates is being prepared by artist Marg Sansom. While these are intended primarily for the new displays, they will certainly be used in subsequent publications, TV, etc.

In August Dr. McGowan visited several fossil localities and universities in the Canadian maritimes. He completed three manuscripts on ichthyosaurs,

one of which appeared in the ROM Life Sciences Contributions series. Dr. McGowan presented several lectures on ichthyosaurs, dinosaurs, and on the nature of the process of fossilization. The latter was the subject of one of the lectures in the ROM series, "Through the Microscope." He also contributed to the discussion of extinction on the CBC series "Ideas."

Among his many contributions to the new dinosaur gallery, Dr. McGowan has been studying the poses and locomotory problems of bipedal dinosaurs. The results of these researches are already evident in the skeleton of *Lambeosaurus* now nearing completion. At the end of May, Dr. McGowan left for a working, six-week vacation in England. He has visited numerous museums, where he has been received with warm hospitality and gained valuable information on ichthyosaurs. One prize was the arrangement of the loan of a four-foot skull of a unique Upper Jurassic ichthyosaur from the Sedgwick Museum, Cambridge. It will be prepared, studied and temporarily displayed at the ROM.

Dr. C. S. Churcher completed his report on the Late Pleistocene vertebrates from archeological sites in the plain of Kom Ombo, Upper Egypt. This represents one of the largest and most varied Pleistocene faunas from northeast Africa. Dr. Churcher was invited to participate in the 75th Anniversary Congress of the Geological Society of Egypt, and presented a paper on the Kom Ombo vertebrates. Dr. Churcher continues work on the Pleistocene mammals from near Medicine Hat, Alberta, including new material collected in the summer of 1971.

Dr. Churcher and Dr. Parsons continue to supervise the researches of several graduate and undergraduate students. P. J. Currie prepared a report on Pleistocene reptiles from the tar pits of Talara, Peru. Les Kisko is nearing completion of his doctoral thesis on *Canis dirus* from Talara. Miss Brenda Beebe is continuing her research on *Dusicyon*, a Pleistocene fox from Talara, Peru. On completion of the cataloguing and description of the ROM material, she will visit several U.S. museums to examine comparative material.

Mr. David Simms completed his research on the camelid, cervid, and equid ungulates from the Pleistocene of the Port Charlotte area of Florida and expects to present a report upon which further research can be based. Paul Ramaekers nears completion of his doctoral dissertation on the small mammals from the Big Horn Basin, Wyoming, and has done much pioneering on special statistical methods for describing and identifying early primate teeth. Mark Wilson is also making good progress on his thesis on the Tertiary fishes from British Columbia.

Dr. Churcher, Dr. Parsons, and Dr. McGowan presented the general course in vertebrate palaeontology (Zoo. 464) to 13 students.

Book and Gift Shop

Mrs. Helen Downie, Manager

Dr. L. S. Russell, Curator Emeritus, continues his full-time activity with research and teaching. He gave two lecture courses in vertebrate palaeontology, and acted as Associate Editor of the Canadian Journal of Earth Sciences. Dr. Russell's report on the non-ungulate mammals from the Cypress Hills Formation of Saskatchewan is now in press in the ROM Life Science Contribution Series. With Dr. R. E. Sloan of the University of Minnesota, Dr. Russell completed a paper on the fossil mammals of the St. Mary River Formation (Late Cretaceous) of Scabby Butte, near Lethbridge, Alberta. While the known specimens are rare and often fragmentary, this fauna is important as a link between those from the better known Oldman and Lancian formations.

In collaboration with Dr. C. S. Churcher, Dr. Russell planned and travelled the route of Excursion A21 of the XXIV International Geological Congress, and was senior author of the guidebook.

Technical Activities

Special mention must be made of the activities of the technical staff of the department. Because of the urgency of the gallery programme they have been called upon to develop new techniques and investigate new

materials, and reluctantly have had to defer field work and preparation of research materials. Under the capable direction of Chief Technician Gordon Gyrmov, the three permanent technicians and three technicians hired especially for the gallery renovation programme have shown unusual incentive and ingenuity. Mr. Steven Trenka left the department in May and his position was taken by Mr. David Fisk. Mrs. Ruth Snell, a talented volunteer, has been of great assistance in making moulds and casts for exchange and research.

Several changes in staff occurred during the year. Gordon Hammond resigned as Research Assistant and his position was taken by Mr. Gerald Proverbs, M.Sc., who was subsequently promoted to the position of Curatorial Assistant. Mrs. Judy Allan resigned from her position as departmental secretary, and Miss Lynda Smith, stenographer, has very capably taken over that position. The stenographer's role was assumed by Miss Marsha Rodney.

Two young ladies were hired as summer assistants in 1972. Mrs. Rosemary Johnston is re-preparing some very well preserved ichthyosaur material for Dr. McGowan. Mrs. Janet Clarke, working under the supervision of Mr. Proverbs, hopes to complete all of the preparation and classification of the modern osteological reference collection. In summary, the efforts of the permanent staff of the department have been almost entirely devoted to the many activities involved with the new dinosaur gallery. At the same time a considerable amount of research, collecting and curation was accomplished by permanent staff, cross-appointees and students.

During the past year, we had occasion to review the policy of the Book and Gift Shops, our purposes and progress.

We feel a Museum Shop's education responsibility is to reflect the highest standards in everything it offers to the public.

The Shop should do for the Museum visitor what he almost never does for himself; discriminate among the thousands of objects offered the visitor by selling only those objects and publications which best represent the Museum.

In many instances, the Shop is the only real contact the visitor has with the Museum: therefore, it is one of our chief public relations contacts. The visitor should go away with the feeling that the quality of the Shop measures up to the quality of the Museum as a whole—first class! This requires staff diplomacy and knowledge; attractive and not over-crowded display and Museum publications and reproductions for sale.

To fulfill this policy requires more than our resources are capable of at the moment, in spite of the fact that we doubled our operating profit (before non-recurring expenses) from July '71 to June '72, and although our mail

Display Biology

T. M. Shortt, Chief

order business is now handled by a different Department. I give every credit to Mrs. Downton and the sales staff for the tremendous job they have done this year.

The budget allotted for supplies, equipment, etc. is only barely sufficient to meet our basic requirements but inadequate for our wider purposes and we are handicapped by the fact that we cannot use our profits to re-invest in Museum publications and reproductions nor for promotional purposes. This means that we may have to carry a higher inventory than is usual.

One setback we had this year is reflected in the net profit figure. Unfortunately as predicted, we had to distress some publications and material we had been carrying since before the Shop re-organization over two years ago. In spite of an offer to write off at that time, we could not accept it because the material was new and some had been written by the Museum staff. We did not feel that under the circumstances it would be fair, and hoped that with improved distribution, we could dispose of it. This did not prove the case, nor did the fact that some of the material was related to an important 1972 exhibition, move it.

I would like to emphasize again that when judging the Shop operation, the criteria of performance evaluation should be based on not only the net profit but the service and good-will we provide for the Museum as a whole.

Owing to many other demands of the department's time it was not possible to complete the African rain forest diorama as planned.

Considerable progress has been made towards this end including the installation of a mini-diorama within the larger one. The main diorama represents a scene 80 feet up in the canopy of the forest. To heighten this illusion it was felt that some indication of the forest floor below was desirable. This was accomplished by the construction of a scale model to show the contrasts in vegetation and animal life at ground level. It features a shallow stream, a group of African elephants, crested guinea fowl and the immense buttressed tree trunks and smaller shrubs that characterize this layer of the forest. The finished model was installed upside-down within the main exhibit and reflected into a large

mirror. Completely concealing the edges of the mirror was the final step in construction. The resultant illusion is that of a gap in the lush foliage of the canopy through which one looks down to the peaceful scene more than 80 feet below. This kind of installation, to the best of our knowledge, has never been done before in any museum.

Loans, Lectures and Demonstrations

Many requests have been made of the department, both from within and outside the museum, for information, loan of specimens, lectures, demonstrations and class visits behind the scenes. These have included a seminar on biological displays at Laurentian University and lectures on Japanese arms and armour at the University of Toronto. Among many



Section of diorama portraying a Tropical Rain Forest in Uganda.

Display General

J. Anthony, Chief

others, the Gage Educational Publishing Company and the animal purchasing committee of the Toronto Metropolitan Zoo were supplied with pictorial and technical information. Our long established connections with the Department of Museology included, in addition to several demonstration sessions, a videotaped production of the techniques of bird skinning.

Special Exhibit

A major undertaking was the preparation of a special exhibit for the ROM showcases at Yorkdale shopping plaza. Using 'Specialists' as our theme, we prepared a two-case display of 20 mounted birds, designed to show how many creatures become specially adapted to different modes of feeding and locomotion. Many of these bird specimens were as much as 50 to 100 years old, and needed extensive cleaning and repair as a first step in preparation of the exhibit. Various anatomical features of these birds were compared, with the aid of specially constructed props and models, to equivalent human tools or machines. On an ecological level, it was stressed that man's arbitrary alteration of environments and conditions can so change the world of these specialists that they cannot adapt to survive these changes, leaving only those creatures which by nature are readily adaptable to new foods and surroundings. This display has proved to be the most successful yet presented at Yorkdale, and it is hoped that a version of it may be shown at the Museum itself in the near future.

The Display General Department has a versatile design team capable of dealing with tasks well beyond those of pure display. Thus, it is constantly under pressure for renovations of office, study and laboratory spaces, as well as temporary exhibitions and permanent galleries. The current Jubilee Programme adds heavily to earlier existing demands—timing of course always being of the essence.

Exhibits

With the willing help of our highly skilled and always obliging carpenters and preparators, some 25 exhibits of various kinds, size and complexity were mounted.

The fiscal year started with the opening of "C  ramique Fran  ais", on Bastille Day. Both the exhibit and accompanying celebration were an outstanding success with all those attending. A major textile exhibit "Keep Me Warm One Night" was mounted in the early fall, which formed a comprehensive view of one complete segment of the Museum's textile collection, never before viewed in its entirety. Comprehensive Paul Kane and Emily Carr exhibits were mounted during the winter and also for the first time a staff art show was installed which showed a broad representation of the art talent available within the building. The largest exhibit of the year of course was "Hidden Treasures," the first large show of the Jubilee Year Programme. In spite of its size, we could only show a certain amount of the Museum's

hidden holdings; however, the public seems to have gained great enjoyment.

Of the smaller exhibits, the Bird Bone Show, Arts of War in Ancient China and the Quartz show were notable successes in the third floor rotunda. Meanwhile in the lower rotunda, such graphic shows as "Eskimo Art," the "Art of John Held, Jr.," "Portrait of the Chippewa" and "Japanese Society Cultural Art" were hung with great expertise by the preparators.

The Museum's effort to display material outside its walls has continued in the showcases at the front of the building, and has also moved farther afield with continuing changing displays at Yorkdale Plaza and The Royal Bank. In the meantime, a specially designed exhibit of Chinese Jades has been travelling Ontario, and is presently headed for the far north.

A new Museumobile Programme was initiated this year, and although work is still in progress on these units, they should be on the road in early fall, covering much of Southern Ontario.

Gallery Construction

Gallery construction was started on the east portion of the Vertebrate Palaeontology Gallery, and is coming along very well. Across the way, new tanks are being installed in Invertebrate Palaeontology thus allowing them to show more live specimens.

A small African area in the Ethnology galleries was re-done to house a gift collection, and although it was produced on an extremely tight budget, it forms a startling contrast to the rest of the area which has not been touched for 30 years.

Education

Miss Norma Heakes, Head

The Chinese Bronze Age Galleries were lately refurnished and opened to the public; however, a small amount of work is still needed there. It is hoped that we can refurbish the last of the Chinese Galleries within the coming year, so opening the entire collection to the public. On the main floor, the European 19th Century Gallery will open in mid-July, thus finishing the area around the Lee Collection.

Included in some of the projects completed this year was the production of a controlled environment bird aviary for Ornithology, certainly the most sophisticated bird house in Toronto.

The design and refurbishing of the Administrative area was completed while refurbishing still continues at the newly acquired space in the Canadiana Building. At last, the Canadiana collection will be in one place.

We are now half way through our Jubilee Year Programme and the demands have been fast and furious, especially for temporary items such as signage and special 'instant' projects. The coming fiscal year will see both the completion of the Jubilee Year Programme and a continuing effort to maintain the rate of change, hopefully, with enjoyment and advantage to all.

The year 1971-72 in the Education Department has been one of great activity and stimulation.

Two new teachers were welcomed to the staff. Miss Nancy Gahm from William Lyon Mackenzie Collegiate, North York is a science teacher. Mr. Riley Moynes, a history teacher, came as the seconded teacher from the same School Board, for a two-year period. As part of an orientation programme for these two persons and a refresher course for the others the reading of Dr. C. T. Currelly's "I Brought the Ages Home" set the stage and gave background colour to the history of the Royal Ontario Museum. Staff members attended noon-hour lectures by the Members' Committee, special lectures, and film showings. They enjoyed attending each other's classes and were more keenly aware of museum activities as a whole.

This year, the Sunday Film Programmes and Extension Courses, and some adult group work was assumed by the Department of Visitor Services. The Education Department has thus been freed to concentrate upon programmes for elementary and secondary schools.

Programmes for Schools

Any programme offered to today's schools must have a certain flexibility to keep pace with the innumerable types of theories and teaching techniques that are currently in vogue. It must also maintain the academic standards for which this institution is known. Communication with the

classroom teacher previous to the visit is encouraged whenever possible, so that classroom preparation may be adequate. It also gives the museum teacher the opportunity to prepare relevant material.

Generally speaking, each class is dealt with as a unit, studying subjects suggested by the literature circulated to all Metropolitan Toronto and Provincial Schools within a radius of 150 miles. However, on over 30 mornings of the year, Auditorium Programmes within the ROM are conducted. As many as eight different schools may be represented for such studies as "Metals in the History of Mankind," or "Man and Communications." These topics are introduced to the audience through films, slides, and lectures, after which the individual class visits at least two galleries to study particular aspects of the general topics.

In May and June the choice of a more informal approach is offered to the classes. Classes may begin with an introduction in the theatre, and then are invited to tour the galleries. At important functions, ROM teachers are available to answer questions or give information.

Occasionally, in-depth sessions are arranged, perhaps lasting one day. Beverley Heights Jr. High School, North York, sent 15 students to do research on 16th Century England. Mrs. P. Isetta organized the day, calling upon experts from other departments to assist. Miss Ella Martin

and Mr. K. C. Keeble discussed Shakespeare and the Globe Theatre and Armour, respectively. Miss Alice Chrysler invited three guest musicians to assist her in presenting selections of Elizabethan music, using instruments typical of the period.

Many classroom teachers wish to conduct their own museum visit, a concept which meets with the approval of the Department, provided of course that certain regulations are honoured. It is always necessary to apply for gallery space in order to avoid conflict with other classes.

Programmes for Adults

A number of interesting adult groups request our assistance. During the past year, for example, there was a group from the Salvation Army William Booth Memorial Officers' Training College. Classes came from Victoria College for World Religions. For the third year a group from St. Jerome's College, Waterloo, came for an introduction to Social Anthropology. Dr. H. Fuchs, Ethnology, and staff from this department collaborated on the programme.

Programmes Outside Toronto

The Education Department makes a continuous effort to reach out to schools in other parts of the province. During the past year Miss Alice Chrysler and Miss Margaret Cumming visited schools in Mid-northern Ontario, including Sudbury, Elliott Lake, Wawa, and Manitoulin Island. Miss Betty

Clark spent two weeks in the City of Windsor—a first for Windsor. Formerly we have visited the rural areas of Essex County, but have never concentrated upon the City. Her material illustrating Invertebrates, Dinosaurs and Minerals was enthusiastically received.

Shorter day visits were made to schools closer to Toronto. For example, Mrs. Isetta spent 7 days in three North York Schools, Sir Sandford Fleming Secondary School, Victoria Park Secondary School and Beverley Heights Junior High School. In total 755 students examined museum material illustrating facets of vertebrate palaeontology and physical anthropology. The study also included the material culture of various historical periods including 16th century England. Miss Fitz-Gibbon and Mr. Moynes took part in education experiments at two schools in Woodstock.

Mr. Basil Johnston, teacher of Native Indian Culture continued his classroom contacts, seeing some 7,000 students. The emphasis of his work has been changing. Writing, television, radio, and liaison duties with Indian Groups have gradually taken Mr. Johnston out of the classroom. Next year, this contact will be made by a teacher yet to be appointed.

Our 16 Porta Museum exhibits continue to be circulated to schools in distant parts of the Province. Approximately 30,000 students actually studied their contents. Cases were also used by Summer School for Teachers at Queen's University, and by the Ontario Department of Mines.

Special Programmes and Displays

The Hospital for Sick Children and the Ontario Hospital, Queen Street were again included on our schedule. It is unfortunate that someone cannot be found among the volunteers to organize more visits to handicapped groups. It would be a time-consuming project, but so very much needed—and very satisfying to the volunteer.

The outreach of the Education Department was extended by Displays, set up by Mrs. Pamela Burgin, Artist-Technician. One, depicting aspects of Chinese life, was at the Charles R. Sanderson Branch of the Toronto Public Library for the summer. Another, at the St. Lawrence Centre, introduced a Metropolitan School Board publication "Arts in Education."

The success of school visits to the museum is greatly determined by the classroom teacher. Teacher to teacher contact is encouraged, either on an individual or group basis. Last year, the Head of the Department was invited to discuss with the grade 5 teachers of Scarborough Borough, the programme suggested for their classes, 216 of which were scheduled. At another meeting with the Principals of East York she was able to outline the services offered by the Department to both elementary and secondary schools.

The Open House for Metropolitan Toronto Teachers was held February 7, 1972 with 700 attending. The success of the evening was largely due to the enthusiastic and sympathetic cooperation of the Curatorial Staffs, without whom any of our programmes would be impossible.

Mrs. Isetta gave two lectures to the Museology students on "The Philosophy and History of Museum Education" and "Museum Education in the Royal Ontario Museum." Education Department teachers again acted as research consultants for Museology students.

Saturday Morning Club

The Saturday Morning Club held very lively meetings for 22 weeks. Following the recommendations of the report of 1970-71, Miss Eugenia Berlin successfully planned two separate programmes, one for new members and one for former members. The six new groups were introduced to the galleries. The other four groups, former members, had a choice of two out of four interest groups. All groups expressed in some art media the ideas gained from Museum studies. Although we thought we had reached our capacity of 350, Miss Berlin found

space for an eleventh group—known as Junior volunteers. They not only assisted in many ways with the activities of the Club, they also had the opportunity of learning bookbinding and studying in the Elizabethan, Mediaeval, and Roman galleries. Miss Berlin is "most grateful for the interest and thoughtfulness expressed in many ways by the ROM staff members, instructors, parent, volunteers, friends and club members".

Involvement with professional groups is encouraged. Mrs. Patricia Isetta is a member of the Training Committee for the recently organized Ontario Museums Association, while the Head



of the Department is on the Council of the Canadian Museums Association.

In 1970-71, 97,000 pupils attended classes taught by museum teachers. In 1971-72 there were 100,587. In 1970-71, 162,930 students used the museum as compared to 165,295 in 1971-72. Experimental types of classes are the rule rather than the exception. This trend may be expressed by the desire for less structured classes.

Evaluation

Compliments or complaints indicate to some extent whether or not the visit has been pleasant and profitable. One rose does not make a summer, nor one complaint a failure. Conversations with classroom teachers reinforce the knowledge that many look to the Education Department for assistance in acquiring information about and inspiration from our collections.

Individual child visiting on the weekend seems to reflect good class experiences. From existing statistics we can estimate fairly accurately that, for every paid adult visitor who comes in, 2½-3 children enter the museum. As one adult tourist remarked, the young come with a purpose. They know exactly what they want to see.

Last winter, questionnaires, with return addressed envelopes, were given to 500 teachers who brought their classes to the Museum for a conducted period. Half were returned.

The results indicated that the programmes offered were more than acceptable. Approximately 53% of the teachers indicated that they had been able, on their own time, to preview the display to which they intended to bring their class. The fact reflects how important the teachers consider the field trip. They do want more use of artifacts with their pupils, smaller groups and more freedom to wander. In theory, ROM teachers agree with them. Hopefully, expanded space will allow us to reach a compromise. The teachers did appreciate the pleasant manners, well informed and professional approach of the ROM teachers.

Staff Notes

Each year, because of the loan arrangement with a Metropolitan Toronto School Board we must always say farewell to a teacher who has rapidly become one of the family. This year Mr. Larry Podmore returns to the formal educational system, as Head of the History Department at Oakwood Collegiate Institute. His enthusiasm, scholarship, imagination and humour has made his stay with us memorable. We expect him back regularly with his classes. I am sure the European Department will even loan him "the sword" we associate with Larry.

Miss Judy Penfold, who has ably kept track of all who entered the museum, has left us to assist in the Department of Visitor Services. We wish her well.

And to Margaret Cumming we wish a happy retirement, but shall miss her wisdom and contribution to the Department. Over the past 23 years

Margaret has won the friendship and respect of many members of the Royal Ontario Museum. She joined the staff as a science teacher but soon was given the unenviable position of statistician for the whole museum. Among her statistics is the amazing fact that during her 23 years at the ROM, Margaret taught over a quarter of a million children.

Personally may I express my gratitude to those of the Department, and others outside the Department, who assumed some of the responsibilities that I had to neglect because of an enforced absence. On behalf of the teachers may I thank the staff of all departments of the Museum for their advice and cooperation. Curatorial staff and those of the Service Departments sooner or later give assistance to the Education Department. Details of this assistance, as of our programme, defy listing. Our appreciation is simply expressed, but very sincere.

Film Library and Archives

Ella Martin,
Film Librarian

The Film Library and Archives is concerned with the acquisition and production of film and video tape material that is not available from commercial sources for Museum use. These films and video tapes are provided in support of Museum departments of Education, Visitor Services Development, Museology and Museumobiles. In addition, emphasis is placed on promoting the use of Museum film and video tape productions for School Boards and over broadcast networks. The Film Library and Archives provides the programming for Sunday Afternoon Film Showings, Special Museum Film Festivals and other special events.

The Film Library and Archives provides a library of 16mm motion picture film and video tape subjects particular to museum topics, collections, and research not normally available from existing commercial film library sources for use by Museum departments, as well as other Museum archival, training and interpretative services. Holdings in the library are not normally for loan to public or commercial organizations.

Films and Video Tape

The production of Museum film subjects by the Film Library and Archives is of two types: the interpretation and enhancement of Museum collections by film and video tape to produce a wider understanding of Museum materials based on scholarly research and to provide a film record of museum activities particularly of an archaeological

nature. Field record footage provided by curatorial departments is edited, narrated, scored, etc. for Museum, School Board and commercial broadcast use. The selection of objects and scholarly support data for the script is under the close supervision of the curator involved. The camera work, narration, scoring, editing, mixing etc. is provided by freelance film makers and laboratories under the direction of the Film Library and Archives. The Museum is not involved in capital expenditure for equipment, studio or laboratory operating costs. The Museum's competence lies in providing the visual material and scholarly content of the programming.

The following Museum films have been produced in 1971-72: *Hornsby Pottery*; *Sierra Madre Rain Festival*; *Rescue Dig—Fengate '71*; *New Guinea Mosaic*. The following subjects are in process: *Hudson '70*; *Mound Points—Rainy River*; *Fort Albany*; *Life As It Flows*; *Rice Lake Project*; *Godin Project*.

Cultural "Shorts"

The Education network, Channel 19, operated by the Canadian Broadcasting Corporation and the Ontario Educational Communications Authority repeated the 45 Museum cultural shorts, one, two and three minute filler programmes made in 1971, many times over this year. These Film Library and Archives directed programmes dealt exclusively with Museum objects, scripts having been approved by the curator whose collection was involved. *New Guinea Mosaic*, another of the Film Library and Archives series of films about the

Museum's collection, was shown twice on both English and French networks. This type of public viewing of collections before visits to the Museum is considered an asset to "pre-knowledge" for museum clientele to help improve the meaning of museum visits for a wider audience.

Such film and video materials produced under the direction of the Film Library and Archives and the curators will find use not only for over-the-air broadcast and in School Boards, but also for use in the Museum for Gallery orientation centres, when they come into operation, and outside the Museum in museum community learning centres when organized.

Twenty-seven titles have been added to the 150 titles in the Film Library and Archives during 1972. These films were obtained from the CBC, NFB, BBC, ROM, CFI, and from Budapest and Japan.

Information Services

Alex MacDonald,
Information Officer

The activities of this department cover an extraordinarily broad spectrum: publishing, print and graphic design, advertising, publicity and ancillary activities. Of these, two areas have received a particularly strong concentration of effort and reorganization during this past year: publishing, and advertising and promotion. The efforts have been rewarded.

Publications

1971-72 has been the most active publishing year in the Museum's history. In addition to the normal flow of publications in the academic series, the Museum published three major hard cover books: *Chinese Jades*, *English Embroidery* and *The Menzies Collection of Shang Dynasty Oracle Bones*. All editing, design and production supervision was handled by this department. In a national competition, *Chinese Jades* was selected as one of the "Best-designed and best-produced Canadian books published in 1971." Two further Indian

Charts were also published to complete the six-part series.

At the beginning of the fiscal year the department took over responsibility for the sale and distribution of all ROM publications. Since then sales have steadily increased which produces a cash flow for future publications. Even more effort must now be made to publicize our books for it is essential that the Museum provide a viable publishing facility for its authors and our plans rest heavily on the funds that expanded sales will produce.

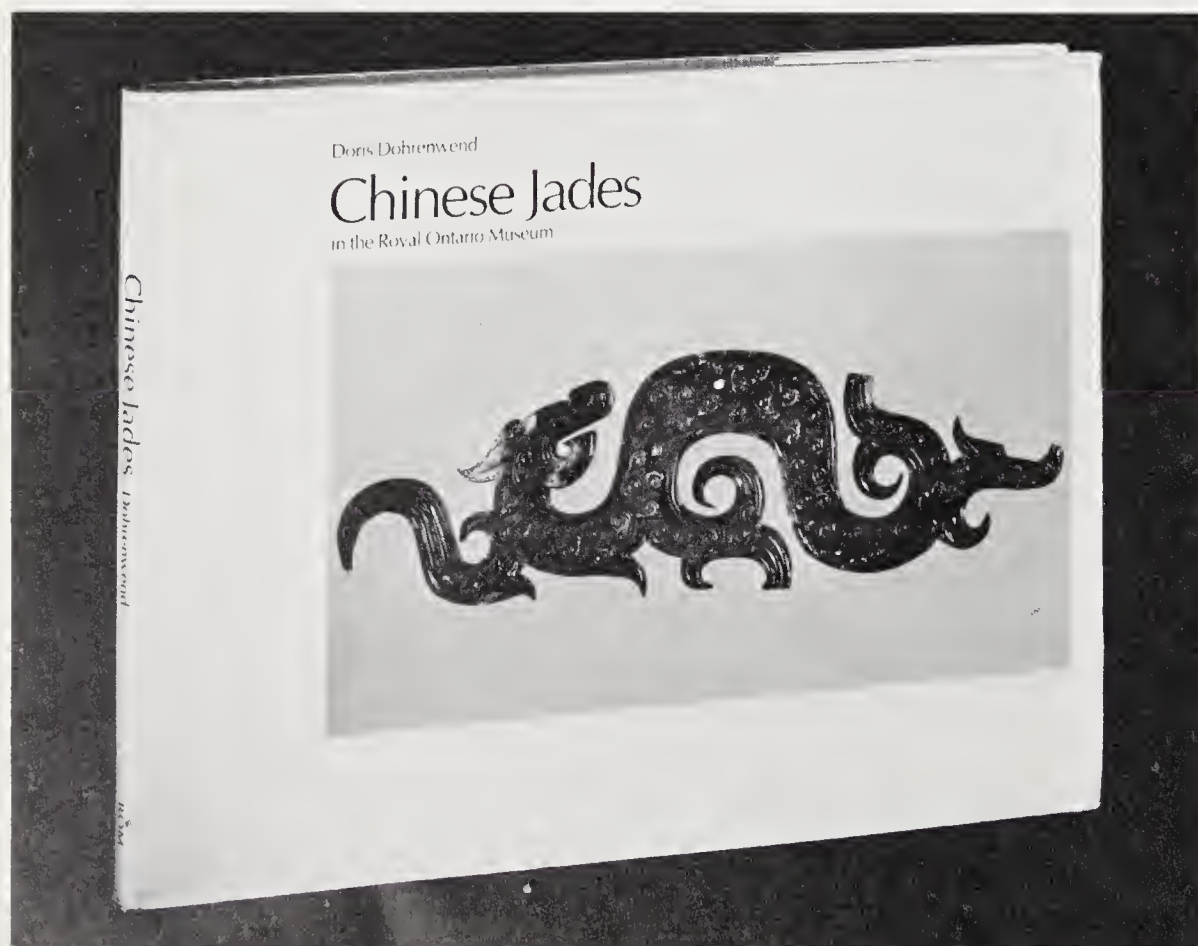
In addition to books, the department has produced a number of pamphlets and exhibition guides. One, *Keep Me Warm One Night*, was particularly successful, selling out in about six weeks. *Rotunda*, of course, has continued to publish, now slightly larger and with full colour photography as a regular feature.

Advertising and Publicity

Advertising and publicity has been developed as a multi-faceted operation. A great variety of communication channels are employed but the most widely used are newspaper advertising and a poster programme. The latter involves greatly expanded poster production so that the department is now producing over 20 different posters each year. We have received much public praise for the design of these posters. Certainly they have achieved their objective of generating attendance at events.

Dovetailed with advertising is publicity. This includes public service announcements on radio and television, listings of events in magazines and newspapers and, perhaps the most effective, news and feature stories in local media. There have been many such stories due to our constant personal contact with the press, radio and television.

The results of this comprehensive programme were impressive: despite foul weather, about 1500 people attended a Planetarium Open House; over 1500 came to the Indian Night; there were overflow crowds at both the Concert series and the Literary Readings; attendance at the Sunday Films was so great that on five occasions it was necessary to have a second showing; the film "Russia" was shown to sell-out crowds on three successive nights; the various free lecture series were exceptionally well



Award winning book "Chinese Jades" published by ROM.

Library

Eileen Kulbaba,
Head Librarian

attended—on one occasion the audience numbered over 500, even the average for 16 lectures was 162.

Publicity was not, of course, restricted to specific events and the year produced an abundance of feature material in the press and on radio and television. It is notable that this publicity was not confined to local media and appeared, in many cases, right across the country either in national magazines or on the wire service. Indeed, through the Department of External Affairs, stories appeared in numerous countries throughout the world.

The particular programmes that are included in this report are there because they represent the areas in which the greatest effort has been made to reorganize and improve their effectiveness during the year. At the same time, however, so many other activities have continued in the regular way. *Preview* and the Planetarium brochure have appeared at their appointed time; a continuous stream of photographs has gone out to publishers; arrangements have been made for film crews to shoot in the Museum; five seminars were held for students of the Museology course; one lecture given to Humber College students; and so much more that cannot be detailed.

The effectiveness of all this work rests on three essential elements; the specialized skills and enthusiasm of the staff; the cooperation of other departments; and the receptiveness of many people in the media. We thank them all.

The past year has been an extremely hectic one for the library as several major projects were either undertaken or completed. In an attempt to control our book population explosion, an intensive reclassification programme of the old Art and Archaeology Collection was undertaken. As a result, almost 2,000 titles or about half this entire collection was recatalogued. The completion of this project over the coming year will permit a more efficient organization of library materials and, coupled with the storage space recently allotted to the library, should provide several years growing room.

In the interests of efficiency and economy, the exchange files have been completely re-organized and updated. Questionnaires were sent to each institution on the exchange list, resulting in a few institutions being dropped from the list and the addresses of about a third being corrected. The re-organization of the files, besides providing easier and quicker access to the information contained therein has permitted the use of the addressograph coding system—a faster and cheaper method since the duplication of plates required by our former system is no longer necessary.

Special Book Displays

During the past year the library plunged into the area of book display with two exhibits. The first for the

Antiquarian Book Dealer's Association Book Fair, held at the Westbury Hotel, was attempted at the request of the Association who kindly donated the gate receipts to the ROM. The library was grateful for the opportunity to participate in the Book Fair and to advertise Museum memberships and publications. "Rare books—Early voyages and travels in North America," a display in honour of the Museum's Diamond Jubilee year was planned and organized by Mrs. Press and exhibited in the third floor rotunda. The library enjoyed showing part of the collection that is seldom available to the public.

Library Use Increases

Statistics compiled for 1971-72 indicate a further increase in the use of the library. Museum staff and students borrowed 9,498 titles and requested 4,603 reference searches. Reference requests totalling 7,596 were received from the public. The Museum library lent 640 titles to other libraries and borrowed 861 for use by the Museum staff.

Over the past year the two and one half Assistant Librarians catalogued 1,714 titles and recatalogued 1,764 for a record total of 3,478 titles. As a consequence 24,000 cards were added to the library catalogue. Paid subscriptions to 519 journals were placed.

As a result of the Museum's lively exchange programme 15 titles (including 4 issues of *Rotunda*) were distributed to institutions around the world. As usual, the library received a considerable number of useful publications in exchange.

Museology

W. Hewitt Bayley,
Administrator

In July, Miss Rosemary Murray joined the staff as Assistant Librarian. Miss Murray came to us from St. John, New Brunswick where she supervised a high school library. Mrs. Marian Press became a full-time staff member following her graduation from the Toronto School of Library Science in April.

As in previous years the professional staff participated in library associations and in June, Miss Murray attended the Special Libraries Association Conference in Boston.

The library wishes to acknowledge the many gifts of literature from both individuals and institutions and in particular the generous donations of Mrs. Egerton-Brown, Mrs. Edgar J. Stone and Father Riotte of the Entomology Department.

It is encouraging to note that the use made of the library by Museum staff, students and the general public is increasing steadily each year. In addition, the Museum library is borrowing less on interlibrary loan while lending more. These two facts would indicate that effective research collections are gradually being developed in the library's areas of specialization.

The Museology programme of the ROM is now three years old. It is of importance to note that of the 97 institutions listed in the American Association of Museums' publication, *Museum Training Courses in the United States and Canada*, only 18 are graduate degree or certificate programmes. Of these, there are only two that offer a Master's Degree in Museology. The University of Michigan and the Royal Ontario Museum/University of Toronto programmes are museum-based courses. Others are primarily university courses with Museology as a secondary discipline.

The thrust of the ROM programme is toward student appreciation of the realities of museum operation and practice, together with an understanding of the language and attitudes of curators and department heads in the pursuit of a museum's objectives. The ROM is especially suitable for such an undertaking as most museum disciplines are represented in this one institution. Students are provided with undertakings in two museums and one art gallery during their training, and in addition, take two graduate courses in their academic discipline.

Students are chosen on the basis of their academic competence in a given field, together with proven motivation for museum work. In addition, the student's prior experience should indicate a strong ability to generate enthusiasm with communication skills, both verbal and written.

Enrolment

Enrolment in Class VI, to be graduated in December 1973, now stands at 16. However, it is expected that a number

of students will drop out due to the 80% advance in the School of Graduate Studies fees. More than 50 applications were recorded in the programme at the School of Graduate Studies, University of Toronto.

The 15 month term for this programme demands that two classes overlap as enrolment is on an annual basis, resulting in upwards of 20 to 25 students being involved in the programme for a given period during the year. Curtailing the double enrolment in June and September will improve the situation, so that from 1973 onwards there will be about 10-15 students graduated at the Fall Convocation each year for whom posts in museums and galleries must be found.

Course Content and Activities

The curriculum and course content in 1972-73 was conducted in accordance with the Syllabus dated May 1971. The Lecture Course for the two classes (IV and V) entailed 404 hours of lectures by 30 Museum curators, 7 ROM educationalists, and 8 department heads. Fifty hours of lectures were given by visiting experts on such topics as Contract Law, Copyright, Exhibit Design, and Exhibit Effectiveness Research.

Students prepared travelling exhibits, taught Museum classes within the formal structure of the Museum Education Department, performed continuing exercises in label writing, gallery guides, information sheets, film

Photography

L. R. Warren,
Head Photographer

scripts for slide and film strip presentations, public speaking assignments, gallery design, work in the Museum Conservation Department and docent duties.

Students spent roughly a month at the Art Gallery of Ontario where they had the opportunity to practice framing, matting, conservation, and assisted in the Extension Programme, Education Department and Exhibit Design.

Summer apprenticeships for six to eight weeks duration are found for students in other institutions, where they work in support of that museum or gallery through the application of their knowledge and experience.

The Museology Department now has a library specific to museum subjects, comprising over 400 titles, available for student use.

Through the generosity of Donald S. Rickerd, a Museology Fellowship Fund was established in 1971, for the support of special projects in museology of a research and development nature. Two students have been assisted this year, one for

research in Florence, Italy, the other to develop display and collection documentation for a museum in Peru.

Graduates

Nine students will have received the Master's Degree in Museology as of June Convocation 1972. Of this number, six have received posts in museums and art galleries. Two students who have completed their course work but have not completed the Final Paper have also been placed and plan to graduate at the Fall Convocation 1972.

With the prospect of 14 students to be graduated at the Fall Convocation 1972, our efforts to find positions for our students in museums and galleries will be taxed to the limit. It is expected that with implementation of the Secretary of State's Policy for Museums, put forth at Calgary, March 28, 1972, more institutions will be in a position to employ our students.

The programme has received strong support and cooperation from Canadian museums and galleries as well as European and North American institutions, particularly in respect to the internship programme.

The success of the programme is primarily dependent on the cooperation of the ROM curators to whom our gratitude is extended.

The output of the Photography Department is again above that of the previous year. Our greatest assistance came from a recently installed automatic film processor. We have had the usual heavy demands from all curatorial departments and with Information Services requesting a large number of special photographs for many publications, among them *English Embroidery*, Mrs. K. B. Brett; *Chinese Jades*, Miss Doris Dohrenwend; *Keep Me Warm One Night*, Mr. H. Burnham, and a forthcoming catalogue of oriental rugs.

Jubilee Year with its many special shows and exhibits has also contributed to the heavy demand for photographs.

	69/70	70/71	71/72
Photo prints	16,227	19,343	20,375
Negatives	4,805	5,588	5,218
2 x 2 Slides	3,819	4,002	358
4 x 5 Colour	348	358	311

Programme Secretary

Mrs. Helen Downie

This fiscal year includes the first half of the Museum's 60th birthday year and the whole programme was planned with the anniversary in mind; we led up to 1972 and will continue through it by emphasizing the Museum's collections and assets.

Exhibitions

All exhibitions have been either organized by the Museum itself or have been closely related to it. Our major fall exhibition, "Keep Me Warm One Night," was organized by the Textile Department, and we finished 1971 with a Staff Art Show.

The first exhibition in 1972, "Paul Kane 1810-1871" was a travelling exhibition organized by Russell Harper for the Amon Carter Museum and contained many paintings and sketches belonging to the ROM. "Hidden Treasures: A Leap Forward," the big exhibition of material belonging to the ROM which had either never been shown before or had not been seen for many years, was the contribution of the Art and Archaeology Departments to Jubilee Year. These three shows received assistance from the Canada Council.

All exhibitions arranged in the third floor rotunda were sponsored by a Museum department, for instance, "Iron Technology" by the Office of the Chief Archaeologist, and "What Bird Bones Tell Us" by Ornithology.

The lower rotunda is used chiefly for graphic exhibitions because of its location—it is the hub of the service areas, and traffic tends to become a

problem. The outstanding exhibition in that area was, I think, the drawings, prints and water colours of the cartoonist and social historian of the 1920s, John Held, Jr., which was circulated by the Smithsonian Travelling Exhibition Service. Commencing in 1972 we invited organizations which have participated regularly in the Museum's activities for some years to use the area for exhibitions of their own. Most of those invited accepted, and so far we have shown exhibits from the Toronto Field Naturalists and the Japanese Canadian Cultural Centre.

Mr. Douglas Patrick continues his "one-man" efforts to provide us with many fine stamp exhibitions, in many cases planned to supplement events and activities in the various areas of the Museum.

For Jubilee Year we asked the Members' Committee to plan for the Children's Gallery a series of shows relating to children. Under the chairmanship of Mrs. David Bohnen, they have been able to find a series of interesting and instructive shows, including "Sculpture in Cloth," a collection of hand sewn dolls by Mrs. Alberta Pearce and "Photographs" by Mrs. Reva Brooks of children from Mexico. We have discovered that this area does not lend itself to changing exhibitions, and we hope to make it into a permanent gallery display in 1973.

Regular exhibitions are scheduled by the Canadiana Gallery and the Textile Department, and this year the Mineralogy Department held four special shows in its gallery.

The most important exhibition of a miscellaneous nature prepared this year was "Chinese Jades," arranged as a travelling exhibition in especially

designed cases and containing a spectacular selection from the ROM's important jade collection. The exhibition has been circulating in Ontario and will finish with a tour of the Arctic, the whole made possible by a Canada Council grant and assistance from the Department of Indian Affairs.

Lectures and Concerts

The success of the various lecture series this year has been most rewarding, particularly so in that three of the four series have been organized by the Museum's Curators and participated in by them. We had overflow attendance at many, and it was interesting to note that the most popular subject at the moment seemed to be archaeology. I feel sure that the Archaeological Newsletter, sent out monthly to Museum members, contributed greatly to this interest.

To help celebrate 1972, a concert series was planned for the Fresco Gallery. Assistance in choosing the performers was given by the Province of Ontario Council for the Arts and a small grant was also made, both gratefully acknowledged. The hour chosen was 5:30 p.m. and, in spite of stormy weather almost every Wednesday evening, the series was highly satisfactory. We plan to continue with another series this fall.

The series of literary readings, "In Person," was also an experiment we had long wanted to make, and with the help of Mr. John Robert Colombo, Managing Editor of the *Tamarack Review*, we were able to attract some very popular authors. The readings

were also held at 5:30 p.m. in the Fresco Gallery, and were even more popular than the concerts. One author, Irving Layton, drew an audience of well over 500 and we were forced to move to the Theatre. We are planning another series this coming fall.

Social Events

It is hard to choose the most important and interesting of the special events

held this past year, but I think at least two need particular mention.

Peendagen-Gadesnigo, "Come in, you are welcome," was an evening of music, story-telling and dance presented by a group of Canadian Indians. It was a warm-hearted, attractive and appealing event, which brought us a public attendance of approximately 1,500 people. It was

organized with the help of the Mariposa Folk Festival committee.

Celebration was a festival for and participated in by Canadians from other lands. The garden was the focus of activity for entertainers and craftsmen from many cultural communities within the city. The Museum opened its doors free of charge on that day, and it is estimated that about 8,000 persons took part. The entire event was organized by the ROM Members' Committee with assistance from the International Institute and with a grant from the Provincial Government. A calendar of events for the year 1971-1972 appears on pages 96-102.

Membership

The Member volunteers' desk provided a major contact for the sale of memberships and is responsible for 709 this year.

The reception desk was also a key area which took in 90 memberships.

For Jubilee Year we made a special discount as an introductory offer to the staff of the University of Toronto and the Ontario Institute for Studies in Education. Together 98 members joined.

Otherwise, there were no particular drives and it is therefore very satisfying that the membership appears to be self-increasing.



	1971	1972
Annual Individual	2,254	2,898
Annual Family	552	820
Life	746	786
Honorary Life	28	31
Benefactor	25	27
Endowment	5	5
Patron	16	16
	<hr/> 3,626	<hr/> 4,583

Visitor Services Development

David Young, Supervisor

The major task of the Department of Visitor Services Development is "the exploration of ways and means for a fuller, more organized service for all levels of our demanding society."

The results of this exploration have been expressed in two reports: *Community Education*, October 1971 and *Proposed Learning Centre*, May 1972.

Instituted as a department of one person one year ago, Visitor Services Development has in many respects been a part of the Departments of Museology and Film Library and Archives. The sharing of ideas, office space and equipment has meant involvement from time to time in the Museology Programme, and almost daily involvement with film—either in staff showings or the Sunday Film Programme.

Mr. Bayley and Miss Martin were instrumental in establishing Visitor Services Development, and have acted as mentors and guides in the past year; their presence and support has been integral to the operation of the Department. Mrs. E. Cruise undertook in addition to her own duties, to act as secretary for this Department as well; her prompt and efficient work and general assistance have been much appreciated.

The Department welcomes two experienced staff members as of July of this year. Miss J. Penfold, formerly

of the Education Department will be taking on the duties of Department Secretary, and in addition will be responsible for the compilation of attendance statistics previously done by the Education Department. Mr. Harold Vanstone, who will assist in all aspects of the operation of Visitor Services Development, comes to us with a great deal of experience.

Graduate of the Ontario College of Art, the University of Toronto, and the Ontario College of Art, the University of Toronto, and the Ontario College of Education, Mr. Vanstone has worked in several departments of the ROM, lectured at the Ontario College of Art, and acted as instructor in both the Saturday Morning Club and the ROM Youth Club.

Continuing Programmes

Although the primary concern of this first year has been planning, we have also continued existing programmes and instituted new ones as well as dealing with special requests originating in the Museum and outside.

In November, a questionnaire was designed by our Department at the request of Dr. J. McAndrews for the ROM Field Work Sunday Talks. One significant finding was the interest of the overwhelming majority of those questioned in having a reading list of books related to the lectures.

On February 17, an evening behind the scenes was organized for the Metro Science Teachers' Association. Several of the ROM science curators participated: Dr. W. B. Scott, Dr. E. J. Crossman, Dr. R. L. Peterson, Dr. J. R. Tamsitt, Mr. A. Troicki, Mrs. E.

McGann, Mrs. C. Johnston; Dr. G. B. Wiggins, Dr. D. Barr, Mr. T. Yamamoto; Mr. G. Gyrmov, Mr. A. Brantley, Mr. G. Proverbs; Mr. B. Leech, Dr. J. Mandarino, Mr. J. McAndrews, and Dr. W. M. Tovell. In appreciation of this service the Association made a donation to the ROM acquisitions fund.

Students from the ROM Youth Club who acted as guides for the teachers, found the evening the highlight of their club activities, even though the talks were presented at a level appropriate to secondary school science teachers.

Special Programmes

Over the course of the year the Department has begun to receive requests from a number of study groups for special programmes. John Vollmer gave a lecture at our request to a Junior League study group. A group of senior citizens were shown a film and given a related gallery tour by the Department head who also presented a talk on Erich von Daniken's film, *Chariots of the Gods* to a club of professional men and women called "Enterprise Lodge." On one or two occasions assistance was given to the Touring Committee and the Education Department with a tour or student lesson, and in their turn members of both the Touring Committee and Education Department gave tours and lessons for the Youth Club or Senior Citizens Club.

One other interesting project of this Department was to assist a graduate student at the Ontario Institute for Studies in Education with an experiment concerning learning with objects. Dr. Millet generously provided us with a selection of early flint tools for this project.

Finally, contact with Douglas Stewart, Head of Community Services with the Toronto Libraries, has led to arrangements for the circulation of an Entomology exhibit in several of the Toronto branches. This development is one that the Department is very interested in expanding since the libraries can support exhibits with book displays, and such cooperation can promote the education objectives of both institutions.

Balancing General and Special Programmes

One of the central objectives of the Department of Visitor Services Development is to find a balance between activities such as the Sunday Film Programme which serves several hundred visitors each week, and programmes such as the Youth Club and Senior Citizen's Club which provide an in-depth approach for relatively small groups.

Although high attendance figures are an important measure of the Museum's contribution to the communities it serves, it is also true

that intensive high-quality programmes for small groups serve at least an equally valid need.

Extension Courses

The attempts to find an appropriate balance so that a variety of needs and demands can be met is also reflected in the Extension Programme which has courses ranging from unlimited enrolment to one with enrolment limited to 20 registrants.

The ROM, working in cooperation with the U. of T. Extension Division, conducted five extension courses over the past season. Total attendance for the five courses (one repeated) was 2,913. As in former years, our courses were listed in the U. of T. *Special Programmes* brochure and in Metrodoc. In addition, our own brochure was circulated to ROM members, various special interest groups and associations, and the Metro libraries.

Questionnaires returned by participants in Dr. H. C. King's two 15 week courses in *Astronomy* (total attendance 765) and *Exploration of the Universe* (total attendance 425) indicated strongly the continuing success of Dr. King's efforts.

Since Dr. Wiggins' course, *Invertebrates: Man's Unseen Associates* involves the use of laboratory equipment, registration is of necessity limited. However, demand for the course was such that a few more than the maximum were accepted. Total attendance for 10 weeks was 200.

Digging Into the Past was given both at the Museum and at Richview Public Library in Etobicoke (total attendance for 10 weeks was 682). Those who attended were impressed with the fact that the course included so many really excellent lecturers. The library organized a special book display for several of the lectures, and participants in the course were thus able to avail themselves of the combined resources of Museum and library.

Looking at Chinese Art was greatly over-subscribed in the fall and to satisfy the demand, this ten-week course was repeated in the winter term. Total attendance for both courses was 661.

For the latter two courses, this Department was responsible for projecting slides and films and introducing the speakers.

The extension courses for next year have been planned. Four courses will be offered in cooperation with the U. of T. Division of Extension. In addition two courses will be offered by the Far Eastern Department, one by the Conservation Department, and one by the Greek and Roman Department. These courses will be administered by Visitor Services Development.

Miss Martin, who has for many years conducted the Museum lectures for the degree course in Design at

Ryerson, is passing on the bulk of that assignment to this Department next year; however, in her capacity as consultant she will continue to contribute her invaluable experience.

Sunday Film Programmes

With a formidable knowledge of films, and a fine sensitivity for their juxtaposition in developing a theme, Miss Ella Martin last year produced one of the best Sunday Film Programmes yet.

The theme of man's relationship to materials and living forms of the earth was stated with particular force in the first programme, by the film *Ishi in Two Worlds*, a portrait of the last man in North America to lead a totally aboriginal existence. This theme corresponded well to the central objective of the ROM film programme: to add to the enjoyment and appreciation of the Museum collections. Art and Archaeology, the Earth and Life Sciences, as well as Anthropology and Ethnology were all represented by the films selected for this series.

Attendance for the series increased from an average total of 4,000 in previous years to well over 7,500 last year. While this increase is primarily due to the fact that the programme was expanded from 10 to 15 Sundays, much of the credit must go to the Department of Information Services. The attractive brochure provided a brief description of every film, and more funds were allotted for publicity

than in previous years; for example, a large advertisement in both Toronto papers in January may have been the reason for high attendance figures on January 16 and 23.

As part of their training, graduate students in the Museology Programme introduced most of the Sunday Films over the past season. The assistance of Mr. Bob Buchan and Mr. Charlie Bernard, and the services of Mr. Knudsen as projectionist were also much appreciated.

ROM Youth Club

More than half the secondary schools in Metro were invited to recommend a maximum of two senior students as members of the ROM Youth Club. Although the total number finally registered in the Club was 65, attendance on any given evening seldom exceeded 40. These numbers were quite satisfactory for our first year since an easy and informal atmosphere was vital to the aims of this programme. Only with a small group could we provide a setting in which young people could engage in a learning experience which was both enjoyable and of high quality. Having had the benefit of a year of experience, we will be able next year to invite representatives from all the Metro Secondary schools with the expectation that registration will increase two-fold.

It was over two years ago that an approach was made to the Junior League with the idea of a Youth Club; however, for a variety of reasons nothing materialized until last fall. At

that time, this Department was given the task of sharing the organization of the Club with a Junior League Committee, chaired by Mrs. David M. Menzies. The League generously financed club activities, and their committee handled administrative details, arranged for non-Museum guest speakers, and assisted in all club activities. The Department of Visitor Services Development looked after films, organized Museum activities and solicited the assistance of ROM staff.

From October 1971 to June 1972, the Club met every Tuesday evening from 7:00 to 9:00 p.m. either in the Dinosaur Den (which is closed to the public after 5:00 p.m.) or in Room 4. One week was devoted to visits behind the scenes, talks in the galleries, lecturers, films, or special events such as the evening when a troupe of Greek dancers demonstrated their skills and taught the students a few of the simpler dance steps. The alternate weeks were given over to work on four projects: Dr. E. J. Keall, Assistant Curator of the West Asian Department, conducted a study of the Parthians and work on the designing of a display case of their artifacts; Mr. K. C. Keeble, Curatorial Assistant in the European Department, worked with a group on the production of a Mediaeval play; Mr. H. D. Pepper, Artist-Craftsman with Display Biology (as well as student and collector of things Japanese), worked on the production of a Japanese play; Mr. H.

Vanstone, Technician with the Department of Vertebrate Palaeontology, worked on the production of a diorama. These projects reached various stages of completion, but in every case they provided a valuable vehicle for an in-depth study of a specific aspect of the Museum and its collections.

A great many people contributed to the success of the Club this year. Guest lecturers included Mr. Richard Needham of the Globe and Mail; Mr. Noel Moore, film-maker in residence at Erindale College; Mr. Norman Elder; Mr. Stephen Cruise of the A-Space Art Gallery, and a troupe of Greek dancers.

Within the Museum, in addition to the four project leaders, interested people from a number of departments volunteered their time and talents: Mrs. M. Allodi, Canadiana; Miss A. Harle, Greek and Roman; Miss A. Hillmer, Entomology; Mr. C. Breede, West Asian; Miss P. Daniels, Archaeology; Dr. H. Fuchs, Ethnology; Mrs. P. Isetta, Education; Mrs. N. Leipen, Greek and Roman; Mr. D. McKinnon, Mineralogy; Mrs. E. Phillimore, Conservation; Mr. J. Vollmer, Textiles; and Dr. Swann.

Funded by an Opportunities for Youth grant of \$4,500, six young people from the Club will provide a

programme in the Museum during July and August for children ages 6 to 12. Operating under the supervision of this Department, these six young people also have the full support and assistance of the Education Department in the preparation of their programmes which will include mini-tours, arts and crafts, films, folk music and dancing, stories and games.

Friends of The ROM

The impetus for organizing a club for senior citizens came from two active and interested citizens. Many of their original ideas have been incorporated into the structure of the Club, and this independent aspect is emphasized in the name they have adopted for the Club: *Friends of the ROM*. It is a good choice for this name implies that the club includes men and women who come to the ROM with an ability to contribute as well as a willingness to learn.

Our primary aim with this club, as with the Youth Club, is to provide an environment for learning. It is for senior citizens who have led active lives and who in their retirement want intellectual stimulation and the opportunity to discuss new ideas with their peers. It is for people who wish to study in an informal, relaxed and enjoyable way, at a pace they can set for themselves, and with opportunities to explore the by-ways of their main course of study.

Another similarity to the Youth Club is the concern for Club members to share what they have learned with

others in any of a variety of ways, and of course on a voluntary basis.

Club membership now stands at about 30 to 40. Members were contacted through the agency of *Pensioners Concerned*; the Social Planning Council of Metropolitan Toronto; the International Institute; a number of associations for senior citizens; and by word of mouth once the programme began. In addition, we sought the advice and assistance of the Office on Aging Branch of the Department of Social and Family Services.

The club met last year from April to June every Thursday afternoon from 3:30 to 5:00 p.m. with Room 4 as our central meeting place. Activities usually included a film, a tour of the galleries, or the examination of objects borrowed from the various departments of the Museum. We thank Mr. Peter Storck, Archaeology; and Miss Martin, Museology, for appearing as guest lecturers, and also the Touring Committee for a special tour of the Hidden Treasures Exhibition.

We are looking forward to increased membership and an expanded programme when the Club resumes activities in the fall.

Members' Committee

Mrs. Harold M. Turner, Jr.,
Chairman

To have presided over the Executive of the Members' Committee has been a great honour, particularly in the year the Museum is celebrating its 60th Birthday with many and varied Jubilee activities.

Last spring, our 16 new members began their course of familiarization or orientation with the Museum and its collections, by joining the Study Group organized by Mrs. Ronald Hart. This year our new members will be given the same opportunity.

Special Projects

ROMart '71, a gala display of student art, was a huge success, blessed not only by the organizational skills of Mrs. Henry Karpus and Mrs. Paul Ellard, but with the only three consecutive days of blue sky and sunshine in the entire year. We were asked to repeat the event again this year and did so on

May 26th and 27th, sunshine included. Last year, prizes were donated by friends of the Museum. This year, the Museum donated three prizes of \$100 each, for winners in three categories, and the Members' Committee gave three second prizes of \$50 each. Kay Kritzwiser, art columnist for the *Globe and Mail*, and artists Harold Town and Alan Collier made the selections. There was also a sale of art.

On Saturday, June 5th, 1971, Mrs. T. G. Ryley planned a Geological Bus Tour of the Niagara Escarpment, with Dr. Tovell explaining matters of interest along the way. Again, this was so well received that it was repeated this year, with a change of scene and involving other departments of the Museum.

The Evaluation Committee did a marvellous job on bringing the By-Laws up to date, in accordance

with the changing needs of the committee and an enlarged membership.

To help celebrate Canada's Birthday and the Museum's Anniversary, we were asked to organize "Celebration Day," involving Canadians of varying origins in a programme of activities. This was held on Saturday, June 17th, and Mrs. Ellard took on the task of arranging a highly successful event. We feel that this request from the Museum is a tribute again to the organizational skills of our members and our willingness to be of assistance wherever and whenever needed.

To spread the news of Jubilee year at the ROM to out-of-town groups, Mrs. R. Murray Bell invited many to come, have lunch and tour our exhibits. We thank her for her efforts on our behalf.



Mrs. D. R. Bohnen and a talented group of helpers planned a series of exhibits in the Children's Gallery in the Museum. Beginning in January, an exhibit of Felt Banners from the Highland Creek Public Library was shown, followed by an exhibit of beautiful handmade dolls. Next came the winning posters from a competition in public schools on Pollution, photographs by Reva Brooks and, starting June 1st, an exhibition on Water Safety. More are planned for the fall and winter.

Contributions

The proceeds of *ROMarama '71* which we turned over to the Museum, purchased a silver inkwell set by Robert Cruickshank for the Canadiana Gallery, and a handsome English gentleman's suit of about 1775 for the Textile Department. We also as a committee joined the Group of 100, giving \$1000 to the Acquisition Fund. Not content with these contributions, and being made aware of a need in the Ethnology department, we also contracted to purchase a collection of paintings by the Ojibway artist, Norval

Morrisseau, for \$2,200. It will be reassuring to know that these examples of the artistic talents of our present day native Canadians will be preserved within the walls of our Museum.

Volunteers and Tour Guides

The Volunteers continue to serve the Museum and assist the public by staffing the Information Desk seven days a week, greeting the hundreds of school groups who visit the ROM, and lending a helping hand to the Committee whenever needed. What would we do without them!

Our 36 Tour Guides, or, as Mrs. Austin Thompson, Touring Chairman calls them "the middlemen between curator and visitor," have personally conducted the grand total of 13,845 people of all ages through the ROM galleries and special exhibitions of Jubilee year. Encouraged by the confidence of the Director and staff, they have repeated a series of lectures on Chinese Arts with proceeds going into the Bishop White Fund, and have expanded into their own space programme by adding Planetarium tours to the schedule.

In an effort to maintain dignity and decorum, the Committee Chairman tried but failed to encourage members to call the Touring Cupboard the Touring Office. The dimensions simply

overwhelm the purpose. However, as with all departments we too look forward hopefully to having adequate space ultimately.

Study-Tour of Montreal

Mixing business with pleasure and education, 25 members of our committee travelled to Montreal for three days in April. The Project Committee, under the direction of Mrs. Norman Simpson, had a programme outlined that would have out-raced a long distance runner. We saw and learned a great deal about this fascinating city and its heritage. We met with members of the Montreal Museum of Fine Arts, and were able to have a valuable exchange of ideas with them. Tired as we were, we look forward to more trips in the future.

In closing, I wish to thank all members of the staff who have helped make it one of the most interesting and exciting years of my life.

Museum Attendance

July 1, 1971—June 30, 1972

Main Building

Visitors—Adult Paid	206,557
Others—inc. children	678,099
School Classes	165,285
Other Groups	23,779
Museum Functions	12,198
Rentals	4,969

Total For Main Building	1,090,887
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Canadiana

Visitors	22,820
School Classes	3,132
Other Groups	726

Total for Canadiana	26,678
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Planetarium

Visitors	151,578
School Classes	90,492
Other Groups	13,294

Total for Planetarium	255,364
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GRAND TOTAL	1,372,929
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Comparative Total Attendance

1966-67	1967-68	1968-69	1969-70	1970-71	1971-72
743,100	836,257	1,369,034	1,330,804	1,266,648	1,372,929

School Attendance 1971-72.

Metropolitan Toronto

	(1971)			(1972)			<i>Grand Total</i>
	<i>sec.</i>	<i>elem.</i>	<i>Total</i>	<i>sec.</i>	<i>elem.</i>	<i>Total</i>	
East York	75	582	657	70	640	710	1,367
Etobicoke	1,336	3,499	4,835	772	2,147	2,919	7,754
North York	2,358	5,418	7,776	3,352	5,123	8,475	16,251
Scarborough	1,394	8,028	9,422	1,137	3,409	4,546	13,968
Toronto	1,693	16,765	18,458	4,890	6,602	11,492	29,950
York	478	4,098	4,576	162	1,418	1,580	6,156
Total	7,334	38,390	45,724	10,383	19,339	29,722	75,446
Separate School	553	4,826	5,379	636	4,182	4,818	10,197
Indep. Schools	940	781	1,721	252	1,243	1,495	3,216
Total for Metro Toronto	8,827	43,997	52,824	11,271	24,764	36,035	88,859

Summary of School Classes Visiting R.O.M. 1971-72

<i>Conducted Classes</i>	<i>Secondary</i>	<i>Elementary</i>	<i>Total</i>
Metro Toronto	8,807	44,050	52,857
County Bds. of Ed.	14,597	23,834	38,431
County R.C.S.S. Bds.	887	5,556	6,443
Federal & Spec. Schs.	209	201	410
Indep. Sch. outside Metro	668	773	1,441
Schs. outside Ontario	737	268	1,005
Total	25,905	74,682	100,587

Unconducted Classes

Metro Toronto	11,271	24,771	36,042
County Bds. of Ed.	4,891	17,526	22,417
County R.C.S.S. Bds.	90	3,883	3,973
Federal & Spec. Sch.	55	167	222
Indep. Sch. outside Metro	163	599	762
Schs. outside Ontario	1,057	235	1,292
Total	17,527	47,181	64,708
Grand Total	43,432	121,863	165,295

Itinerary of Visits

B. H. Johnston
American Indian History

<i>No. of Schools</i>	<i>No. of Students</i>	<i>No. of Classes and Lectures</i>
<i>1971</i>		
Sept.		
3 Public Schools	410	9 classes
1 Separate School		
Oct.		
6 Public Schools	1,280	37 classes
6 Separate Schools		
Nov.		
11 Public Schools	1,895	52 classes
3 Separate Schools		
3 Secondary Schools		
Dec.		
1 Separate School	160	5 classes
1 Secondary School		
<i>1972</i>		
Jan.		
11 Public Schools	1,121	39 classes
1 Separate School		
2 Secondary Schools		
Feb.		
2 Public Schools	514	16 classes
1 Separate School		
2 Secondary Schools		
March		
1 Public School	1,185	16 classes
6 Secondary Schools		
1 Separate School		
April		
1 Secondary School	30	2 classes
May		
1 Secondary School	340	2 classes
Totals:		
34 Public Schools	6,935	178 classes
14 Separate Schools		
14 Secondary Schools		

Library

General Statistics

(For detailed record, see file "Statistics")

Report Year	1964-65	1965-66	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72
Circulation of Literature (volume count)	3,003	3,219	4,894	4,849	11,360	8,655	8,963	9,498
Staff Reference Requests	1,452	1,586	1,990	2,094	3,467	3,723	3,932	4,603
Reference Service to Others (students, visitors, mail, telephone)	1,103	1,220	1,519	1,671	3,122	3,918	7,006	7,596
Interlibrary Loan: Items borrowed from other libraries	542	434	825	605	833	836	1,084	861
Interlibrary Loan: Items loaned to other libraries	87	155	201	236	247	370	574	640
Books Catalogued (including recataloguing) (volume count)	2,976 (incl. Canadiana)	2,257	1,136	2,424	2,519	3,244	2,994	4,034
Cards Added to Library Catalogue	15,000	16,250	14,500	16,200	20,000	25,000	22,500	24,000
Journal Titles Received as Subscriptions (net entry 1967/68)				367	384	435	495	519

General Statistics (Part 2)

Record of increase in services over previous year etc.

Report Year	1968-69	1969-70	1970-71	1971-72
Circulation of Literature	134%	24%*	3%	6%
Staff Reference Requests	66%	7%	6%	17%
Reference Service to Others	87%	25%	79%	8%
Total Reference Service	75	16%	43%	11%
Interlibrary Loan (Borrowing)	38	4%	26%	20%*
Interlibrary Loan (Lending)	5%	50%	65%	12%

(* decrease)

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Calendar of Events

Major Exhibitions 1971

July 15—August 22

Exhibition Hall

Céramiques de France

200 pieces of priceless French ceramics from the Middle Ages to the Revolution, "Céramiques de France" was organized by the Musée National de Céramiques on behalf of the French and Canadian Governments and coordinated by the National Gallery of Canada. A grant from the Canada Council was received.

July 14

Céramiques de France

ROM in conjunction with the Consul of France and the France-Canada Association held a Bastille Day party—"Bal Populaire".

September 14—October 31

Exhibition Hall and

Armour Court

Keep Me Warm One Night

A 19th century coverlet pattern gave its name to ROM's major exhibition of handweaving in early Canada. The more than 500 items and equipment on display were from the ROM collections, the results of a programme started in 1947.

November 16—December 20

Staff Art Exhibition

Paintings, sculptures, sketches, acrylics, silk screen, mixed media, water colours and photographs created by staff members—33 entries with a total of 122 pieces on exhibition.

1972

January 4—February 6

Exhibition Hall

Paul Kane 1810—1871

This travelling exhibit organized by J. Russell Harper for the Amon Carter

Museum, Fort Worth, and the National Gallery of Canada came to the ROM 100 years after Kane's death.

February 15—March 14

Exhibition Hall

Emily Carr Centennial Exhibition

This major exhibition celebrating the 100th anniversary of Emily Carr's birth was organized by the Vancouver Art Gallery.

May 9—July 3

Exhibition Hall and

Armour Court

Hidden Treasures: A Leap Forward

Commemorating the ROM's 60th birthday, this major exhibition consisted of more than 600 objects from the Museum's collections which had never been on view to the public, or had not been seen for many years.

Third Floor Rotunda

1971

June 12—July 25

Limnogeology of the Great Lakes

Photographs and diagrams illustrated the changes in the Great Lakes caused by recent industrial and urban development. Exhibition mounted in cooperation with the Canada Centre for Inland Waters.

August 11—September 22

Iron Technology

This exhibition featured creations made of iron and photographs of the 12 types of iron illustrating their physical and metallographic structure. Prepared by Dr. Walter Kenyon, ROM. The Canada Council provided a grant.

September 27—October 31

The Woodcut: From Dürer to the 20th Century

The artistic and practical values of the woodcut are illustrated in this exhibition selected from the collections of the ROM's European Department.

November 9—December 12

Perch, Publisher and Printer: The

Production of a Natural History Text

This display showed what is involved in the production of a natural history text. The sample text was one that had been prepared at the ROM by Drs. Scott and Crossman.

1972

January 1—February 6

Ethnography Round the World

Supplementing the Paul Kane exhibition, some of the materials on display had never been exhibited previously. An Open House was held with Ethnology Staff on hand. Prepared by Dr. E. Rogers, ROM.

February 15—March 19

What Bird Bones Tell Us

A visual representation of information deduced from the bones of a large variety of birds. An evening Open House was held with members of the Ornithology Department on hand. Prepared by Dr. Barlow, ROM.

March 28—April 30

The Arts of War in Ancient China

The range and function of ancient Chinese weapons were on view in photographs, translations of early records and actual samples. An Open House was held on April 7th with members of the Far Eastern Department Staff on hand. Prepared by Mrs. Stephen, ROM.

May 9—June 11

Quartz, Quartz, Quartz

A display of crystal forms including quartz, rock crystal, amethyst and smoky quartz. Prepared by Dr. R. I. Gait, ROM. An Open House was held with members of the Mineralogy Staff on hand.

June 20—July 23

North American Voyages and Travels of Exploration: Rare Books

A collection of books about early voyages and travels in North America, some having been written by explorers themselves. An Open House was held with members of the Library Staff on hand. Prepared by Mrs. Kulbaba, ROM.

Textile Galleries

1971

September 13—October 31

Blankets and Coverlets

To complement the handweaving from early Canada in "Keep Me Warm One Night," handwoven blankets, coverlets and linens from the United States and Europe were on display.

November 7—December 31

A Hundred Mittens: Latvian Knitting and Weaving

Patterned mittens, blankets, towels and national costumes were on display.

1972

January 7—February 29

Harvest '71

A display of textiles and costumes from various parts of the world that have come to the Museum during 1971 as gifts to the Textile Department, or their purchases.

March 7—April 30

English Embroideries

This stunning collection of English domestic embroideries included recent accessions as well as samples from the whole range of the collection, 16th century to 1800.

May 7—June 30

La Soierie Française

This exhibition showed examples of French silks from the late 17th century to the present.

Lower Rotunda

1971

June 29—July 25

Portugal

Photographs of people and monuments of Portugal by New York photographer, Neal Slavin.

July 29—August 21

The Art of John Held, Jr.

A selection of 65 drawings, prints and watercolours by John Held, Jr. circulated by the Smithsonian Institution.

August 22—September 19

Portrait of the Chippewa

Photographs by Charles Brill of Kent State University of Red Lake Indian Reserve.

September 21—October 21

People: Paintings by Susan Ross

Paintings of Indians and Eskimos of Pond Inlet, North Baffin, Northern Ontario and Manitoba.

November 9—December 12

Bronzes: by Harold Pfeiffer

A collection of sculptures by Mr. Pfeiffer supplemented by the Riveredge Foundation, Calgary.

December 16—December 30

Saturday Morning Club Children's Art

Some of the results of the projects of the Saturday Morning Club members who met in the Museum this past year.

1972

January 8—February 17

Historic ROM Photographs

Included in this pictorial history were pictures showing the excavation of the foundation, original Chinese tomb, early staff members, etc.

February 22—March 26

Nature in the City

An exhibition mounted by the Toronto

Field Naturalists Club to show how people can make their city a more rewarding natural area.

April 4—May 3

Photographs of the Maya Area

Photographs by Dr. Peter Harrison illustrated diversified settings in Mexico, Guatemala and British Honduras, ruins of the Ancient Maya civilization, and the people who reside there today.

May 10—June 18

Kaikan Bijutsu Ten—Japanese Cultural Centre Art Exhibit

An exhibition of Japanese paintings, woodblock prints, ceramics, cloisonné ware and paintings.

Stamps

1971

July

Stamps of Tristan da Cunha Island.

August—September

Stamps of Israel.

October—November

Stamps of Canada and the provinces were selected from the gift collection of D. B. Strudley of Stratford.

November—December

Trial designs and finished stamps for Christmas, 1971 by Lisl Levinsohn.

1972

January—February

While detained in German prisoner of war camps, Polish prisoners devised a postal network among several camps. Some of the actual stamps were displayed.

February—March

Canadian Half Cent Stamps were featured. Only six having been issued, the half cent stamp of 1870 was exhibited.

April—May

Abitibi Paper—a display of how stamp paper which can activate electronic mailing machines is made.

May—June

Early Canadian postmarks and cancellations from an internationally renowned collection.

Children's Gallery

1971

September 8—October 10*Pictures of Innocence*

Freelance photographer Franz Maier of the Globe and Mail mounted an exhibition of his award winning photographs.

December 7—January 9/72*Band Collection of Early Canadian Toys*

The late Percy Band's collection consisted of toys that had been played with by Canadian children during the 19th century. The Metropolitan Toronto and Region Conservation Authority made the display available to the ROM.

1972

January 12—February 20*Banners*

Colourful banners produced by the Children's Workshop of the Highland Creek Public Library.

February 24—March 21*Sculptures in Cloth*

This large and varied collection of cloth dolls was presented by Mrs. Alberta Pearce, 1970 winner of Holland's doll making competition.

March 25—April 9*Saturday Morning Club Children's Art*

An assortment of art work produced by club members, 4th to 9th graders.

April 11—April 30*Pollution Posters*

Children from grades 1 to 8 have interpreted the problem of pollution graphically in response to a Pollution Poster contest held by the Toronto Telegram. The 12 winning posters were included in this exhibition.

May 3—June 11*Photographs by Reva Brooks*

Human conditions and basic values were portrayed in this photographic exhibition of Mexican people.

June 7—July 30*Be Water Wise*

This poster display built around Red Cross Safety rules is exhibited to stress to children that water safety must be practised for a happy summer.

Canadiana Gallery**May 8—September 12***Plotting the Land*

Colourful maps of the province of Ontario, dated from the 17th to the 19th centuries.

September 15—December 12*Transportation in Early Canada*

The movement of people by water, road and rail in the exploration and exploitation of early Canada was shown in watercolour, oils and prints.

December 16—March 14/72*Krieghoff and His Contemporaries*

The total range of Cornelius Krieghoff's work from 1844 to 1871 was presented in this exhibition. Paintings of copyists, plagiarists and colleagues were displayed.

March 16—June 11*Early Canadian Topographers 1758—1820*

The work of various artists were shown

including a number of aquatint views by J. F. DesBarres.

June 15—September 17*The Atlantic Provinces*

Oil paintings, watercolours, prints, charts and documents pertaining to important early Canadian events in the area of the Maritime Provinces, Gaspé and Newfoundland.

Miscellaneous Exhibitions**Mineral Gallery**

1971

October—November*Important Minerals*

In a special case in the Mineral Gallery, 27 of the more important minerals acquired in the past year were on display.

November 16—January 15/72*Frohberg Minerals*

The late Dr. Frohberg was a collector's collector. As one of Canada's foremost mining consultants, his extensive travels provided him with a splendid opportunity to acquire specimens in remote, untravelled areas of the world. The International Nickel Company of Canada has made it possible for Dr. Frohberg's collection to find a permanent home in the ROM.

1972

January 5—March 26*Objets d'Art*

George Stangl, a New York sculptor displayed intricate carvings and sculptures made of such minerals as rock crystal, jasper, agate and lapis lazuli.

May—September*Summer of '71*

Last summer's mineral collecting trips are highlighted showing samples of material collected and where Mineralogy people worked.

Main Rotunda
1971

September 8—15

A tribute to the late Col. Sam McLaughlin

To celebrate the 100th birthday of Colonel Sam, the ROM displayed historical photographs and car ads which traced the career of one of our most generous benefactors.

Far Eastern Gallery
1971-72

December 14—February 2

Chinese Jades

The Chinese Jade exhibition was opened in the ROM's Chinese Galleries with over 200 pieces on display. It was prepared as a travelling exhibition with the help of a grant from the Canada Council.

ROM Special Events
1971

October 4

Omens of Disaster—All Museum Members were invited to attend this show in the Planetarium, free.

October 17

The Cypriote Congress held a reception in Room 4 and viewed the Greek and Roman collections with 100 people attending.

October 19, 20, and 21

The documentary, "Russia", by Theodore Holcomb was presented in the ROM Theatre. This was the only Canadian showing. Tickets at \$5.00 per person were available in advance. 400 tickets were sold for each night.

October 25

McLaughlin Planetarium Open House
Telescopes were set up on the Planetarium Plaza and Planetarium staff were on hand. Inside in the Star

Theatre a show was presented every half hour. Attendance was approximately 1500.

November 13

Women's Auxiliary, New Mount Sinai Hospital, Annual Ball.

November 15

In conjunction with the presentation by the International Nickel Company of Canada of the Froberg Mineral collection, a reception was held in the Mineral Gallery.

November 19

The International Council of Museums held a general meeting in Room 4, adjourning to the private dining room for lunch.

December 6

The newly installed West African Gallery was officially opened by the Vice President of Marketing Research, Mr. Tom Lamont, of the Imperial Tobacco Company at 8:00 p.m. The collection in this Gallery was given by Imperial Tobacco.

December 13

The annual ROM Staff Christmas Party was held in the Armour Court.

**December 20,
21, 22, 23 and
24**

Noon hour concerts, from the Balcony in the Main Rotunda. Once again, the Toronto Youth Choir under the direction of Lloyd Bradshaw entertained. This year's series was presented by the Annual Members.

1972

February 7

Teachers' Night—organized by the ROM Education Department. The whole Museum was open to the teachers of Toronto by invitations to schools.

March 3

Peendagen-Gadesnigo—An evening of music, storytelling and dance was presented by a group of Canadian Indians. The open house which 1500 people attended was held with free entry to the Museum. The focal point of the evening was the presentation of a 35' birch bark canoe made by Cesar Newashish and given to the ROM by the Mariposa Folk Festival Committee.

March 20

Opening of the Greek Coin Display, Greek and Roman Galleries. A presentation was made to Dr. Wilkinson, a Research Associate in the Department, by Mrs. Leipen, Curator.

March 20

An Evening of Chinese Dance. Dr. Shih, Curator, arranged for Miss Chiang Ching, a noted graduate of the Peking School of Dance, to include Toronto on her current tour. Attendance was 275.

May 9

The Detroit Institute of Art Women's Committee members were given tours by the ROM Members' Committee and lunched in the Main Restaurant.

May 12

The Canadian Gemmological Society held a reception for 70 gemmologists in the Mineral Gallery and viewed the "Quartz, Quartz, Quartz" show in the 3rd floor rotunda.

May 13

The first field trip of Jubilee Year was led by Dr. J. McAndrews to Crawford Lake and organized by the Members' Committee. 90 people took part.

May 19

The Toronto Entomological Society meeting was held in the Museum, followed by a reception in the Entomology gallery. Attendance was 46.

May 26 and 27

ROMart '72. Due to the high quality of entries, 9 first prizes were awarded. A grant from the Music Performers Trust Fund in co-operation with the Toronto Musicians Association provided the Museum with music. This outdoor student art exhibit was organized by Mrs. Stella Karpus of the Members' Committee.

June 3

A Tour for Members of the Museum was held to the Niagara Escarpment under the guidance of Dr. Walter Tovell. Attendance was 49.

June 5

The McLaughlin Planetarium once again offered a free demonstration to Museum Members of the Zeiss Projector and its capabilities. Attendance was 1400 members.

June 17*Celebration*

A day-long free celebration featuring entertainers and craftsmen from many cultural communities. Over 9,000 people attended.

June 19

Planetarium Sculpture Reception
The Consul General of Japan, the Toronto Japanese Association of

Commerce and Industry and the ROM cooperated to hold a reception at the Planetarium to acknowledge the gift of a Sofu Teshigahara sculpture by Mr. Walter Carsen.

Throughout the year, the Members' Committee hosted receptions for new Museum Members.

Lectures*ROM Fieldwork Series—1971*

Held in the ROM Theatre at 2:30 p.m., Sundays. Free admission

Organized by Dr. J. McAndrews. All lecturers were members of the ROM staff.

September 19

"Of Mites and Men"—Dr. David Barr. Attendance—50

September 26

"Guadalupe: Natural Laboratory of Evolution"—Dr. Dennis Power. Attendance—95

October 3

"Of Miocene Mice and Men"—Dr. Loris Russell. Attendance—107

October 10

"Indians of Venezuela"—Dr. Helmuth Fuchs. Attendance—106

October 17

"A Look At Man's Past: Altun Ha, British Honduras"—Dr. David Pendergast. Attendance—250

October 24

"The ROM in Iran"—Dr. Louis Levine. Attendance—243

October 31

"Minerals in Ontario"—Dr. Joseph Mandarino. Attendance—107

November 7

"The Senneville, Quebec

Dig"—Donald B. Webster. Attendance—115

Decorative Arts Series 1971

Held in Room 4 at 8:30 p.m., Admission \$1.50—ROM Members Free

October 14

"The Lee Collection"

Miss Yvonne Hackenbroch, Curator Western European Arts, Metropolitan Museum, New York. Attendance—45

October 28

"English Patterns in Portuguese Antique Furniture"

Mr. Robert Smith, Professor Art History, University of Pennsylvania. Attendance—47

November 11

"Irish Silver and Plaster Work"

The Honourable Desmond Guinness Attendance—150

November 25

"Furniture Conservation and Care"

Mr. John Melody, Winterthur Museum, Delaware. Attendance—100

Through the Microscope Series, 1972

This was the first in a series of Jubilee Year lectures given by ROM staff. Organized by Dr. R. I. Gait, this series was held in the Planetarium Lecture Room starting at 8:30 p.m. Admission was free.

January 5

"Photomicrography"

Julius Weber Attendance—170

January 12

"Micro Minerals"

Dr. J. Mandarino Attendance—110

January 19
"Rock Textures in Technicolour"
Dr. W. Tovell
Attendance—160

January 26
"Super Microscopy"
Dr. D. Collins
Attendance—120

February 2
"Fossil Pollen and Things"
Dr. J. McAndrews
Attendance—100

February 9
"Insects Eye to Eye"
Dr. D. Barr & T. Yamamoto
Attendance—125

February 16
"Dem Bones"
Dr. C. McGowan
Attendance—115

February 23
"Art and Artifacts"
Mr. B. Leech
Attendance—120

Man in Nature, 1972
This, the second series of Jubilee Year Lectures, was originally scheduled for Room 4 but due to its popularity, was moved to the Theatre. All lecturers were members of the ROM staff. The series, organized by Dr. Yen Shih, started at 8:30 p.m. and was held for eight consecutive Thursday evenings with no admission charged.

March 9
"Pollution begins in Prehistory"
Dr. T. C. Young
Attendance—125

March 16
"Valley and Desert: the Two Worlds of the Egyptian"

Dr. N. Millet
Attendance—190

March 23
"The Greeks and the Sea: The Shaping of a Culture"
Mrs. N. Leipen
Attendance—190

March 30
"Village, Town and City: China's Conception of a Balance in Nature"
Dr. H. Y. Shih
Attendance—275

April 6
"Chateau, Villa and Schloss: Urban Life in the Country"
K. Corey Keeble
Attendance—86

April 13
"Costume and Climate: Adaptation to Environment"
Mr. H. Burnham
Attendance—75

April 20
"The Ancient Maya: Life and Death of a Jungle Civilization"
Dr. D. Pendergast
Attendance—500

April 27
"The Indian and the WASP: Two Views of the Land"
Dr. E. S. Rogers
Attendance—144

Special Lectures, 1971-72

1971
November 23
"Victorian Embroidery"—Joan Edwards
The Costume Society of Ontario was sponsor of the lecture held in Room 4 at 8:30 p.m. by Joan Edwards of the Victoria and Albert Museum, London. Attendance was 105.

The Archaeological Institute of America held its lectures at 4:30 p.m. in the Planetarium Lecture Room with free admission. The dates and lecturers:

October 14
Dr. Stanley Loten, ROM

November 11
Dr. Anita Furshpan, University of Connecticut

December 9
Dr. James Wright, National Museum of Man

1972
January 11
Dr. Joseph Shaw, University of Toronto

February 3
Dr. James Packer, Northwestern University

March 16
Dr. Keith DeVries, University of Pennsylvania

April 13
Dr. Cuyler Young, ROM

April 25
Professor B. N. Goswamy lectured from 4:30 to 5:30 p.m. in Room 4 on Indian Painting. The lecture was arranged by Dr. H. Y. Shih with attendance of 20.

Films

November 14 to March 19, 1972
A programme of international films was well attended in the ROM Theatre on Sundays. There was no admission to these high calibre films which were previewed by ROM staff on the preceding Friday.

Concerts

March 1 to
April 5, 1972
Jubilee Year Concert Series

This series was arranged with the assistance of Province of Ontario Council for the Arts who also granted a portion of the fee for one of the artists.

March 1
Dr. Peggie Sampson, Viola da Gamba
Attendance—160

March 8
The Clerkes—choral group
Attendance—175

March 15
Joseph Macerollo—Accordionist
Attendance—115

March 22
The Fred Stone Quartet—Jazz
Attendance—220

March 29
Lynn Blaser—Soprano
Attendance—160

April 5
The Sentire Wind Quintet—Wind
players
Attendance—173

Literary Readings

May 3 to
June 7, 1972
"IN PERSON"
Literary Readings arranged by John
Colombo, Managing Editor of the
Tamarack Review

May 3
Irving Layton—Attendance—500 +

May 10
Douglas LePan—Attendance—250

May 17
Hugh Hood—Attendance—180

May 24
George Jonas—Attendance—160

May 31
John Newlove—Attendance—170

June 7
Hugh Garner—Attendance—250

These readings were from 5:30 to
6:30 with a short question period
afterwards. Free admission.

Distinguished Visitors 1971-72

H.R.H. Prince Bernhard of The Netherlands, President, World Wildlife Fund

Dr. Gerardo Budowski, Director General, International Union for Conservation of Nature and Natural Resources, Morges, Switzerland

Major Sheldon S. Carroll, Curator, Numismatic Collection, Bank of Canada, Ottawa, Ontario

Dr. Israel Eph'al, Tel Aviv University, Tel Aviv, Israel

M. Jean Claude Gardin, Director of Research, The National Centre for Scientific Research (C.N.R.S.), Paris, France

Professor B. N. Goswamy, Chairman of the Art Department, University of Punjab, Chandigarh, India

Dr. Carol Hamlin, Queen's College, City University of New York

Dr. Luc Hoffman, Executive Vice-President, World Wildlife Fund, & Mrs. Hoffman, Morges, Switzerland

Mr. Russell C. Honey, Q.C., M.A., Deputy Speaker, House of Commons, Ottawa, Ontario

Dr. John Hubbard, Delaware Museum of Natural History

Mr. Yousef Karsh, Ottawa, Ontario

Professor Vassos Karageorghis, Director of Antiquities, Nicosia, Cyprus

Dr. Robert Merrilees, Australian Representative to the United Nations, N.Y.

Mr. Guy Mountford, International Trustee & Member of Executive Committee, World Wildlife Fund, Morges, Switzerland

Dr. Tamar Noy, Israel Museum, Jerusalem, Israel

Mr. Peter Parr, Institute of Archaeology, London, England

Dr. Allan R. Phillip, Institute of Biology, University of Mexico City

Dr. Edith Porada, Professor of Archaeology, Columbia University

Professor David S. Ruegg, University of Leyden, Holland

Baroness Alix de Rothschild, Paris, France

Mr. Peter Scott, Slimbridge, England, Chairman, British National Appeal, World Wildlife Fund

Mr. H. A. Seaby, London, England

His Excellency Stefan Voitec, President, Grand National Assembly Socialist Republic of Romania with thirteen parliamentarians

Professor Saul Weinberg, Professor of Archaeology, University of Missouri

Bequests, Grants and Donations 1971-1972

Mr. M. K. Abel
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